



INSTITUTE FOR DEFENSE ANALYSES

**Building High-Performing Commander  
Leader Teams: Intensive Collaboration  
Enabled by Information Technology  
and Knowledge Management**

Frederic J. Brown, Ph.D.  
LTG, USA (Ret.)

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# Preface

This document reports on work performed by the Institute for Defense Analyses (IDA) for the Defense Modeling and Simulation Office, Office of the Under Secretary of Defense (Science and Technology), the Department of the Army (DA) Chief Information Officer (CIO)/G-6, and the U.S. Army Combined Arms Center, Ft. Leavenworth, Kansas in partial fulfillment of the “Independent Evaluation of Battle Command Knowledge System Networks and Services” task. It was prepared to support the development of advanced leader and leader-team preparation in conjunction with the formulation and then development of Blocks Two and Three of the emerging Army Battle Command Knowledge System (BCKS).

This document presents a model for developing and sustaining high performing leader teams whether they serve in chains of command, chains of functional support, or chains of coordination characteristic of Joint, Interagency, Intergovernmental or Multinational (JIIM) organizations. The model’s central aim is to describe how new Information Technology (IT) tools available through Army Knowledge Online (AKO) and Army Knowledge Management (KM)—the expanding BCKS—can translate data and information into knowledge and understanding shared among high performing leaders and teams of leaders across Army Operating Forces, Army Generating Forces, and associated JIIM organizations.

Various comments from a broad group of experts (active and retired military officers and civilian researchers) have improved this effort; people who agreed to review very lengthy and complex drafts despite, in several cases, direct command and staff responsibilities in the Long War. The depth and candor of their remarks is deeply appreciated.

Reflective senior military leaders: GEN William S. Wallace; LTG Peter W. Chiarelli; LTG James M. Dubik; LTG (Ret) Leonard D. Holder, Jr.; LTG (Ret) John Sylvester; LTG (Ret) Walter F. Ulmer, Jr.; MG Rick Lynch; MG (Ret) Lon E. Maggart; MG Robert Williams; BG Michael D. Barbero; BG (Ret) James P. O’Neal; COL Robert B. Brown; COL James Galvin; COL John Nicholson; COL Herbert R. McMaster; COL (Ret) Daniel H. French; and MAJ Everett Spain.

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Thanks to the Army governance of BCKS (DA CIO/G-6, DA G-3, and Commanding General, US Army Combined Arms Center) for the opportunity to develop these proposed applications of BCKS. Each has been very helpful.

Within IDA, Dr. Edgar M. Johnson, Dr. John E. Morrison, and Mr. James H. Kurtz reviewed this document. Their comments and suggestions improved its quality and are greatly acknowledged, as are the major substantive and editorial contributions of COL (Ret.) Richard K. Wright.

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## Executive Summary

This document was prepared to support the development of advanced leader and leader-team preparation in conjunction with the formulation and development of the emerging Army Battle Command Knowledge System (BCKS).

It develops a model for the development and sustainment of high-performing teams of leaders that serve in chains of command, chains of functional support, and chains of coordination. The central thrust of the model is to describe how new tools provided by Information Technology (IT) through Army Knowledge Online (AKO), and Knowledge Management (KM) through BCKS, as mutually supporting programs, can translate data and information to knowledge and actionable understanding shared between high performing leaders and teams of leaders across Army Operating Forces and Army Generating Forces and associated **Joint, Interagency, Intergovernmental, Multinational (JIIM)** organizations.

By drawing on AKO and BCKS, America's Army is on the verge of a breakthrough in individual, team and unit performance by creating and sustaining high – performing Commander Leader Teams (HP CLTs.) Extending HP CLTs across JIIM organizations will be critical to winning the Long War.

If leaders draw on top-down IT (communicate) and bottom-up KM (collaborate) to generate and then sustain both grouped and virtual HP CLTs then organizational performance improves greatly. AKO and BCKS together facilitate significant increases in professional communication and collaboration. Intensive collaboration generates shared skills, knowledge and attitudes (SKA) along with shared knowledge and shared understanding and creates HP CLTs. The most relevant SKA for developing HP CLTs are shared trust, shared vision, shared competence and shared confidence.

Much described here is merely new technologies applied to proven learning processes, but there are four new capabilities made available by the combined potential of IT/AKO and KM/BCKS:

- **Commander leader teams (CLT):** Peer or hierarchical teams of leaders, some of whom are commanders, focused on a common mission.

- **Structured Professional Forums (SPF):** Groups of Soldier leaders using the worldwide web and informed mentors (forum leaders) to voluntarily share counsel about improved individual, team and unit job performance.
- **Knowledge Nets (KN):** Networks of readily available and timely functionally-oriented data, information, expertise and applications supporting individual, team or unit performance.
- **Action Teams (AT):** Quick response temporary teams formed, if necessary globally across JIIM, to assemble the best expertise available to support the accomplishment of specific tasks.

The challenge is to leverage successful, proven Army training and learning practices. In addition to the four new capabilities enabled by AKO and BCKS, there are several enablers recommended to facilitate assimilation and institutionalization of CLT preparation:

- **Adaptive Leader Learner (ALL):** A way to prepare leaders and teams of leaders in the art of command by focusing on creating highly adaptive learning tools supporting significantly improved performance.
- **Leader Team Exercise (LTX):** An exercise focused on the development of teams of leaders as distinguished from Leader Development Exercises (LDX) focused on development of leaders as individuals.
- **Battle Command Review (BCR):** An optional modular addition to current After Action Review policies and programs to develop intuition-based decision-making skills, knowledge and attributes for individual leaders and leader teams.
- **Electronic Tactical Decision Game (eTDG):** Electronic, context-based scenarios and vignettes to support intuition based decision-making focused on the development of team leadership.

A consistent challenge in CLT development has been that teams are largely overlooked in both theory and practice; however, they are the key to creating high performing units. A significant insight with respect to leader development has been realizing the importance of preparing leader teams. Individual leaders (commanders in particular) are clearly very important in a commander-dominant hierarchical military organization, but the importance of the individual grows exponentially in the context of continually changing net-centric teams sharing data, information, knowledge and understanding.

Few if any leaders become high performing warfighters through performance solely as an individual. The power and quality of high performance normally comes in a team context—competent individual leaders acting through membership in multiple peer and hierarchical teams, inspiring others to exceptional performance.

The HP CLT development process generates increased shared understanding leading to improved combat effectiveness. The keys are to develop a process to generate SKAs that are increasingly overlapped within a CLT and to institutionalize the process for both Army and JIIM CLTs.

The objective of BCKS is to enable high performing individuals (“passionate professionals”), teams and units by enabling routine horizontal and vertical communication of data and information to generate shared knowledge and actionable shared understanding. KM/BCKS enables the process of creating and sustaining HP CLT caused by simultaneous interactions of intensive collaboration that generates shared SKA within and between SPFs, KNs, ATs, and CLTs.

Central to understanding intensive collaboration in America’s Army is the presence of many overlapping SPFs, KNs, CLTs, and ATs drawing upon shared values and active participation of leaders in units. Focus on the conduct of stability operations with inherent significant JIIM participation may stimulate extensive JIIM SPFs, KNs, CLTs, and ATs, but that seems likely to be much slower coming than expansion has been to date in America’s Army.

The decisive enablers that generate HP CLTs are combinations of IT/AKO and KM/BCKS supporting intensive collaboration that generates shared SKA. Developing and operating in mutual support, they provide important boosts to individual, team and unit performance. But learning and teaching tools (ALL, LTX, BCR, and eTDG) are required to accelerate transition from CLTs to HP CLTs.

HP CLTs are a shared goal of all tactical unit commanders in combat, combat support, and combat service support units. What is new and vitally important to success in the varying common operating environments and JIIM organizations is the certainty of change, of new teams of leaders in new modular organizations grouped to conduct decisive offensive, defensive and stability operations in often highly unpredictable situations. Also new is the derivative requirement to embed learning and teaching tools in the intensive collaboration process that generates shared SKA in

order to speed up and increase the probability of timely transition to high performing teams.

A confirmation of the merits of HP CLTs rests in their contributions to important Army programs. Can they be generated and then sustained routinely? Having done so, does their presence make a difference?

There are four major areas where HP CLTs could provide important support: (1) Army Force Generation (ARFORGEN) Road to Deployment, (2) Future Combat Systems (FCS), (3) Warfighting Mission Area (WMA)/Business Mission Area (BMA) domains, and (4) JIIM Stability Operations.

The ARFORGEN Road to Deployment is a highly sophisticated, intensive, unit deployment preparation, training and learning program being executed by active and reserve forces. The Road to Deployment acknowledges the current power of KM/BCKS. Both vertical and horizontal team building is envisaged across the various leader teams and units preparing for deployment. KM/BCKS provide opportunities for intensified training and learning throughout the unit lifecycle represented in the Road to Deployment. There are many opportunities for interlaced, reinforcing SPFs and KNs sharing valuable lessons learned and experiences

FCS is the Army's premier land combat development effort – the centerpiece of the Army Plan strategy to provide relevant and ready land power. The Experimental Brigade Combat Team at Ft Bliss, TX is the organization charged with integrating important new manned and robotic capabilities as they are introduced. Forming peer and hierarchical teams of leaders through intensive collaboration that generates shared SKA is not currently part of the development vision. The Experimental Brigade Combat Team (BCT) can draw on KM/BCKS tools not only to develop SPFs and KNs across FCS developmental functions but also to draw current best practices from various Infantry BCTs, Heavy BCTs and Stryker BCTs.

The focus of KM/BCKS thus far has been on the warfighting Army. This is necessary and appropriate, but Army KM also should be useful in supporting business transformation. The scope there is far broader as it extends across the full Army Enterprise. Emphasis on intensive collaboration within and between domains of all Mission Areas, in addition to the various IT and KM policies and tools, should bring HP CLTs firmly into Army business transformation.

The extraordinary expansion of Army responsibilities in the context of the importance and magnitude of the Long War makes it obvious that KM/BCKS must support JIIM operations. Almost every aspect of the current Army Plan responds to some aspect of stability operations that are themselves inherently JIIM in nature. Where is the preparation for individuals and teams in the military and other US government departments and agencies? After all JIIM operations are team operations. JIIM tasks are essentially team tasks, but DoD Training Transformation currently addresses only individual preparation and collective training.

## A. Conclusions

Based on AKO and BCKS success and the power of intensive leader collaboration, it is both desirable and feasible to expect the combination of IT and KM to generate and sustain HP CLT possessing shared knowledge and actionable shared understanding across a globally dispersed force.

Leader team development tools (ALL, LDX, BCR and expanded eTDG) can be prepared and rapidly institutionalized to support HP CLT formation and sustainment.

To harness the potential of HP CLTs to support the Long War, diverse operational applications, incorporating continuous test and evaluation to improve and accelerate intensive peer and hierarchical collaboration processes, should be supported. Four development paths include support to: ARFORGEN Road to Deployment; FCS-Experimental BCT; Business Transformation WMA/BMA domains, and JIIM Stability Operations.

## B. Recommendations

1. Restate development of HP CLTs as an explicit objective of BCKS development supported by AKO.
2. Create ALL, LTX, BCR and expanded eTDG to support HP CLT development for America's Army and associated JIIM operations.
3. Apply the policies and programs suggested to support HP CLT to:
  - ARFORGEN Road to Deployment
  - FCS-Experimental BCT development
  - Business Transformation WMA/BMA domains
  - JIIM Stability Operations





# I. Introduction

America's Army is on the verge of a breakthrough in individual, team, and unit performance by creating and sustaining high-performing (HP) Commander Leader Teams (CLT). Several independently evolving trends have converged to enable this breakthrough:

1. The Army's global and strategic power is in the quality and diversity of its Soldiers, who collaborate from the bottom up to share their experiences and mentor each other.
2. Today's Soldiers are "digital natives."<sup>1</sup> Their immersion into digital media has led to a dramatic increase in multi-tasking ability, which is a decisive national military strategic advantage.
3. Enormous Army Information Technology (IT) capabilities mean that all leaders can operate as teams—by function, by personal relationship, and by leader development doctrine and tactics, techniques and procedures (ITPs). An example of IT enabling new opportunities is the availability of "on demand" mentoring and coaching for individuals and teams.
4. Quality Soldiers who are now highly experienced will remain so fighting the Long War. The challenge is to generate vibrant, bottom-up, shared voices of experience that will develop knowledge and understanding through knowledge management (KM) and supported by global, top-down IT.

The convergence of IT and KM has resulted in the following new capabilities.

## A. New Capabilities

While much described in this document is simply about applying new technologies to proven learning processes, there are four genuinely new capabilities now available via the combined potentials of mutually supporting Army Knowledge

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<sup>1</sup> A digital native is loosely defined as someone born after 1980 who grew up with ubiquitous access to digital media.

Online (AKO) and the Battle Command Knowledge System (BCKS). Each requires new terms that will be used extensively in this document:

- **Commander leader teams (CLT):** Peer or hierarchical teams of leaders, some of whom are commanders. Any chain of command is a hierarchical CLT. A staff team is a peer CLT. All Soldiers, Corporal and above, are considered leaders. Because of the critical importance of CLTs to unit combat performance, developing high performing CLTs is the objective focus of Block Three of the original conceptual BCKS.<sup>2</sup>
- **Structured Professional Forums (SPF):** These are Web-enabled collaborative groups of Soldier leaders and informed mentors (forum leaders) who voluntarily share counsel about improved job performance in America's Army. These "passionate professionals" seek to improve their units, their leader teams, and themselves in order to win the Long War. They are the "engine" of BCKS. An outstanding current example of the vibrant power of SPFs is [Companycommand.army.mil](http://Companycommand.army.mil).
- **Knowledge Nets (KN):** Networks of readily available and timely data, information, expertise, and applications supporting individual, team or unit performance. A recent unit-oriented combat example was Cavalry Network that provided combat information and the most current TTP between Soldiers and small unit leaders in the 1st Cavalry Division in Operation Iraqi Freedom (OIF).<sup>3</sup> Other functionally oriented KNs have been fielded, usually under the tutelage of the Training and Doctrine Command (TRADOC) Proponent. Examples are Fires Knowledge Net from the Chief of Joint Fires at Ft. Sill, Oklahoma, and Logistics Network established by the Department of the Army G-4, but now under the governance of the Commanding General, Combined Arms Support Command, Ft. Lee, Virginia, the logistics integrating proponent.
- **Action Teams (AT):** Quick-response temporary teams formed globally across Joint, Interagency, Intergovernmental and Multi-agency (JIIM) organizations if necessary, to assemble the best expertise available to support accomplishing specific tasks. ATs include Army ATs, Joint ATs, Intergovernmental ATs, and Multi-national ATs. ATs build things and advise or make recommendations to those who run things; they come into being when there is a need to innovate to solve a problem, make a decision, or build new knowledge or expertise. They

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2 The concept described in Appendices J and L addressing SKA of Team Leadership is contrasted with the necessary initial task training focus described in Appendix F.

3 Similar nets have been employed by follow-on Divisions in OIF.

work hard and fast, but do not run or formally recommend things. That is done by CLTs. An important example is telemedicine providing the most competent medical expertise from the continental United States (CONUS) to combat medics in Southwest Asia—a logical JAT of Defense Knowledge Management (DKM), once the Department of Defense (DoD) creates appropriate Knowledge Management capabilities comparable to Army Knowledge Management (AKM).

## B. Enablers

Several supplements to proven current practices of the Army Training System are proposed to accelerate the development of intensive collaboration that generates shared skills, knowledge and attributes (SKA). These supplements are useful because they provide vehicles for assessment. These supplements need to apply to institutional or operating unit preparation on the Army Force Generation (ARFORGEN) Road to Deployment; however, they must also be immediately available, effective shared SKA generators for operational use as described in Appendix E.

The challenge is to leverage successful, proven Army training and learning practices. In addition to the four new capabilities enabled by AKO and BCKS, there are several enablers to the current Army Training System proposed to generate and sustain SKAs rather than to train specific tasks.<sup>4</sup> They are recommended to facilitate assimilation and then institutionalization of preparing CLTs facing shifting task organizations characteristic of the modular Army fighting the Global War on Terror (GWOT). Each enabler is designed to stimulate adaptive thought by leaders out of their intellectual comfort zones as both individuals and as members of a CLT.<sup>5</sup> They are:

- **Adaptive Leader Learner (ALL):** A way to prepare leaders and teams of leaders in the art of command by focusing on creating highly adaptive learning tools. “Adaptive learning develops the leader’s ability to understand, then anticipate, change in a world of increasing complexity—highly complex, ambiguous, simultaneous change.”<sup>6</sup> Both leader development exercises (LDXs) and leader team exercises (LTX) can support ALLs.

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4 Training is defined in DoD Training Transformation as including “training, education and job aids.”

5 Spain, Everett S.P., email to LTG David Petraeus, Aug 10, 2006.

6 Brown, Frederic. *Preparation of Leaders*. IDA Document D-2382. Alexandria, VA: Institute for Defense Analyses, Jan 2000, p. IV-4.

- **Leader Team Exercise (LTX):** An exercise focused on developing teams of leaders as distinguished from LDXs, which focus on developing leaders as individuals. LTXs draw heavily on various forms of electronic tactical decision games (eTDGs). Emerging streaming video capability provides the opportunity for enhanced learning through the use of participatory media such as avatars<sup>7</sup>.
- **Battle Command Review (BCR):** An optional modular addition to current after-action review (AAR) policies and programs to develop intuition-based decision-making SKAs that complement HP CLT development.

The measures of performance (MOP) and measures of effectiveness (MOE) built into these learning tools are *de facto* MOP/MOE of intensive peer and hierarchical collaborative processes that generate shared SKA to create HP CLTs. They provide “...some evaluation of the concepts that are advanced to ensure the accumulation of knowledge, rather than the dilution of knowledge through distracting, incorrect assertions.”<sup>8</sup>

KM is collaboration—peer and hierarchical sharing—that routinely generates CLTs when shared data and information become shared knowledge and understanding. Stimulated and supported by IT, and aided by new tools and KM practices such as professional forums, KM can encourage HP CLT development as SKAs of team leadership are generated. To generate HP CLT, the focus is not on training to task proficiency, but on creating shared SKA.<sup>9</sup>

Creating and sustaining HP CLTs for America’s Army by drawing on the BCKS and AKO is important. Extending HP CLTs across JIIM organizations will be critical to winning the Long War.

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7 Participatory media has developed from the interactive and social nature of the Internet. Social networks have given rise to individuals that are eager to engage with and participate in the creation of media. The use of avatars is one way to participate. Webster’s Dictionary defines an avatar as “a manifestation or embodiment.” You act as you wish to represent yourself in a virtual world interacting with other humans as they wish to represent themselves.

8 Rumsey, Mike (Army Research Institute), email to author, Nov 30, 2004.

9 Creating and sustaining SKA is not task training—the traditional focus of the Army Training Revolution. How to develop shared SKA of team leadership is discussed in Appendix J, and in a JIIM context in Appendix K.

This document describes one way to draw upon emerging and rapidly developing top-down IT and bottom-up KM to generate and then sustain both grouped and virtual HP CLTs across America's Army and JIIM stability operations.

It also draws on new and emerging information and learning technologies to describe a methodology that can develop more capable teams of commanders and leaders more rapidly in a modular Army fighting the GWOT. The central premise is that if leaders use IT to communicate and KM to collaborate, they then create teams between levels and across echelons that greatly enhance organizational performance. Further, while security concerns and the time needed to take advantage of this marriage of IT and KM will affect external and internal functioning of CLTs, the increase in effectiveness will generate additional time for leaders and improve operational security (OPSEC).<sup>10</sup>

The newest capability enabling HP CLT is the emerging AKO and the complementary BCKS now expanding for the Army.<sup>11</sup> BCKS is under the executive direction of the Commanding General, Combined Arms Center, US Army TRADOC and supported by Department of the Army G3 and Chief Information Officer/G6. This positive institutional support is multiplied by external assistance from operational units, schools, training centers, and individual experts now continually available across the Army enterprise through global communications.

Realizing this new capability of AKO and BCKS is strongly supported by the shared foundational values of America's Army. These values are facilitated by intensive collaboration and the generation of shared SKA within the current framework of the Army Training System.<sup>12</sup> This does not compete with training to task, condition, and standard, but rather supports it by stimulating excellence by building SKAs.

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10 Holder, LTG(R) L.D., discussion. Clear benefits have consistently generated time and OPSEC in ongoing combat operations. The major challenge has been the lack of adequate bandwidth to make use of KM.

11 An extended description of AKO is at Appendix C and an extended description of BCKS is at Appendix D.

12 Unfortunately there is no such overarching serendipity of shared values in JIIM. New processes, discussed later in the document, are necessary to generate the SKA associated with HP CLT JIIM.

But just as effective and efficient task training requires structuring the processes, so SKA learning has to be structured.<sup>13</sup>

This document is structured to explain opportunities presented by these new capabilities to three general audiences: (1) tactical unit leaders of America's Army and JIIM organizations, (2) the AKO and BCKS development communities, and (3) a larger R&D community that encompasses the military, business, and academia.

To facilitate understanding and confirm selection of the most important shared SKAs for HP CLT development, several appropriate contexts for applying HP CLTs are suggested: ARFORGEN Road to Deployment, Future Combat Systems (FCS), support to the domains of Army Business Mission Areas (BMA) and Warfighting Mission Areas (WMA), and HP CLT support to JIIM stability operations. The application of HP CLTs in these contexts is discussed in detail in Section VI.

One of the most important potential characteristics of BCKS is that it can enable an interactive intensive leader collaboration process generating shared SKA that in turn generates HP CLTs in units and organizations. AKO and BCKS facilitate significant increases in professional communication creating increased collaboration. Execution of intensive frequent collaboration that generates shared SKA creates leader teams that, with training and learning tool support, can become high-performing with shared knowledge and then shared actionable understanding.

BCKS provides support to the art of command. Adaptive leaders and CLTs are linked individually and collectively, formally and informally, to multiple SPFs such as Companycommand.army.mil and to multiple KNs. They all interact continuously, globally, bottom-up as well as top-down, to provide shared data, information, knowledge and understanding to all Soldiers and leaders, corporal and above, in America's Army and JIIM organizations.

Institutionalizing these BCKS potentials will require modifying the current Army Training Strategy. Several modifications are proposed in the larger context of the need to support the Army Plan: to provide relevant and ready landpower; to train

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13 Brown, Frederic. *Training Third Wave Landpower: Structured Training*. IDA Paper, P-2947. Alexandria, VA: Institute for Defense Analyses, Dec 1993.

and equip Soldiers; to sustain an all-volunteer force, and to provide infrastructure and support.<sup>14</sup> KM/BCKS should support each with appropriate HP CLTs.

Nothing here is revolutionary. It is simply taking advantage of proven Army training practices, embedded shared Army values, and new opportunities enabled by the increased availability of data and information generated by using the Internet and proposed BCKS tools. These opportunities are then “locked in” and institutionalized by suggested additions to the Army Training System, which supports the Army Plan.

The next two sections explain how we got where we are and where we are now with respect to CLTs. Section IV addresses the way ahead with the development of HP CLT through intensive collaboration that generates shared SKA. These sections provide the context for the final two sections that discuss in detail the enablers that are necessary to generate HP CLT and four areas where HP CLT development could be institutionalized.

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<sup>14</sup> US Army, “Army Game Plan (31 May 2006), Army Posture Statement,” AUSA Convention Call to Duty, Oct 2006.





## II. CLTs: How We Got Where We Are

This document is the fifth in a series of papers and documents addressing Army learning challenges. A summary of relevant and applicable content from the first four in the series follows in an effort to help the reader understand how the Army finds itself on the verge of this breakthrough related to HP CLT.<sup>15</sup>

### A. Training Third Wave Landpower: Structured Training, 1993<sup>16</sup>

The rationale for structured training was influenced by the Operational Test of the Multiple Integrated Laser Engagement System (MILES)<sup>17</sup> conducted in Germany in 1978. Infantry Platoon training requirements dominated development of what later became the Combat Training Center (CTC) model, which incorporates Observer Controllers (OCs), an opposing force (OPFOR), and an after-action review (AAR) process. It was not a conscious decision at the time, but there was heavy emphasis on the science of control in training explicit, mostly highly measurable tasks to standard. It worked exceedingly well, not only at platoon level, but also at higher echelons as extended through Cardinal Point then Compass Point exercises to battalion command and staff echelons. Therefore, the effort to extend the quality training process emerged, later explained as structured training: "...a positive, productive training experience which causes the desired training to occur has been 'structured' beforehand."<sup>18</sup> In fact, I encouraged routinely applying structured training to learn-

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<sup>15</sup> Quotations in the content summaries are from the original document or paper.

<sup>16</sup> Brown, Frederic, *Training Third Wave Landpower: Structured Training*. IDA Paper P- 2947. Alexandria, VA: Institute for Defense Analyses, Dec 1993.

<sup>17</sup> MILES is a training system that provides tactical engagement simulation for direct fire force-on-force training using eye-safe laser "bullets." Each individual and vehicle in the training exercise has a detection system to sense hits and perform casualty assessment. Laser transmitters are attached to each individual and vehicle weapon system and accurately replicate actual ranges and lethality of the specific weapon systems. MILES training has been proven to dramatically increase the combat readiness and fighting effectiveness of military forces. US Army Program Executive Office for Simulation, Training and Instrumentation, [www.peostri.army.mil/products/miles](http://www.peostri.army.mil/products/miles)

<sup>18</sup> Brown, 1993, p. 2.

ing situations—to battle command where “why” and “what if” should have become more important than “what” and “how.”

Increasingly, it appears that this was not an appropriate translation. It misdirected efforts to improve the art of command, instead actually reinforcing the science of control. The result was the unintended expansion of what is now described as detailed command.<sup>19</sup> Process trumped substance in an elaborate Military Decision Making Process (MDMP) enshrined in various increasingly complex decision matrices.

## B. Information Age Training: Converting Potential to Performance, 1995<sup>20</sup>

The next step was *Information Age Training*, which in part, further linked structured training to the data and information required for satisfying the “commander’s battlefield information” needs and emphasized the science of control. CLTs were seen as one of several target audiences for the training tables and modules for individuals and units. This general focus resulted in the Force XXI Training Program, Warfighter XXI and the Army Digital Learning Strategy (ADLS). The emphasis was on control rather than command. An associated contemporary effort to improve “digital performance” was the Command Post of the Future (CPoF) undertaken with the Defense Advanced Research Projects Agency (DARPA).<sup>21</sup>

There were exceptions. Step three of the original 1998 ADLS clearly addressed high performing leaders practicing the art of command, as it was to be later described in Block three of BCKS.<sup>22</sup>

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19 US Army, *FM 6.0, Mission Command: Command and Control of Army Forces*. HQDA, Aug 11, 2003, pp. 1–16.

20 Brown, Frederic. *Information Age Training. Converting Potential to Performance*. IDA Paper P-3041. Alexandria, VA: Institute for Defense Analyses, April 1995.

21 This innovative effort continues, but the current primary focus is improving control—data and information more than knowledge and understanding.

22 Discussed in greater detail in Appendix D.

## C. Preparation of Leaders, 2000<sup>23</sup>

This document provided the guidance necessary to develop appropriate leader learning models. I shifted considerably from focusing primarily on science of control to the art of command. Serious reflection on the importance of teams was yet to develop. The primary focus was on individual leaders, although a framework is suggested for leader teams.

Several of the 13 learning choices for developing adaptive leaders that are discussed in *Preparation of Leaders* are particularly relevant to this document:

### 1. Learning Choices

#### **a. Art of war (command)—Science of war (control)**

“Both ‘engineers’ of control and ‘artists’ of command must be prepared by drawing on different yet complementary learning strategies.” The distinction between command and control is further refined in the recently promulgated HQDA Field Manual (FM) 6.0 *Mission Command*. Learning programs for each are substantially different. Preparing engineers of control is hands on, task-based supported by rule-based decision aides commonly associated with the MDMP and institutionalized in the current Army Training System. Preparing of artists of command is highly subjective. That education draws on deep knowledge and informed intuition best learned by intensive extended discussion with master mentors who understand and can coach “what if” and “what then” iterations, encouraging leader self-discovery. Adaptive leaders must learn to be both engineers and artists in an environment of continuous change – much of which is unanticipated.

#### **b. Individuals and Teams (Vertical or Horizontal)**

“All leaders operate as members of teams sharing vision, competence, confidence and trust.” Rarely do leaders act alone. There seems to be a clear need to incorporate both “what” and “how” to execute both art and science for leader teams.

#### **c. Event-focused and Change-focused**

“Events focus ‘engineers’, change focuses ‘artists’.” Control engineers welcome certainty in dominating the flow of events. Little is certain to the artist exercising

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<sup>23</sup> Brown, Frederic, *Preparation of Leaders*. IDA Document D-2382. Alexandria, VA: Institute for Defense Analyses, Jan 2000.

command, other than the certainty of change in the “battle read.” Neither event-basing nor change-basing adaptive leader preparation is better or more important than the other. Both are essential in institutional, unit and self-development learning. Because of the heavy emphasis on control in the recent past, command is the more important of the two now.

#### **d. Structured and/or “Free Play”**

“Permit structured predictability in training control. Demand complex, unpredictable situations in educating command.” Training in control requires presentation of repetitive events (building blocks) that develop various aspects of desired task proficiency. Education in the art of command requires capabilities to present new, distinctly different variables, requiring the leader to adapt to be successful. These are two distinctly different requirements, the former is black and white to cue process; the latter is gray to stimulate reflective second- and third-order reasoning leading to timely decisions.

## **2. Learning Opportunities—Structured Practice**

In the original document, the above learning choices are followed by suggestions to create learning opportunities, which would enable “structured practice” focused on solid leader learning of the science of control and particularly of the art of command. An ALL exercise is suggested. For the science of control, a series of Conduct of Fire Trainer (COFT)-like vignettes is proposed with Tips for the Trainer to guide provision of repetitive opportunities to perform to standard.

“Structured practice” for learning the art of command through the ALL process is more complex and seriously complicates the learning scenario. In addition to traditional variables of geography, weather, capabilities, TTP, mission, and time are added volatility, ambiguity, uncertainty, and complexity. For example, the change presented can be predictable or unpredictable, likely or unlikely, rapid or slow, explicit or ambiguous, important or trivial to the leader’s task/purpose. An Armor Battalion S3 acknowledged this learning requirement aptly when commenting on staff planning in Iraq:

In an environment such as Iraq, battalions that address only certain types of targets, or address them without taking into account the third- and fourth-order effects, may find themselves accomplishing individual tactical operations without coming any closer to achieving desired goals or an end state. While this may work on a conventional linear battlefield with a well-defined

enemy and end state, it falls short in Iraq. The variables are too many and the end state too ambiguous at the tactical level.<sup>24</sup>

With the current sectarian violence in Iraq, variables have multiplied, particularly those associated with JIIM operations.

A challenge for learning is developing appropriate triggering situations, then providing appropriate guidance for mentoring leaders to perceive, understand, and influence second- or third-order impacts. *Inter alia*, mentors need to consider and then vary the rate of introducing variables, the rate and magnitude of change, and the time available to the leader. This is doable, but additional development will be required, particularly to do this in a distributed learning environment, probably drawing on participatory media.

### 3. General Learning Model Guidance

Of the 13 guidelines for creating learning models introduced in *Preparation of Leaders*, the discussion of stress is most relevant here.

Stress must be incorporated into learning. “Create as much control stress and command stress (different) as possible in all learning programs.” There appear to be at least two kinds of stress: Control stress is making things happen despite friction. Usually, control stress involves getting complex events to happen as they were intended. The second stress is thought stress and presents different challenging situations: envisioning what you want to happen and then deciding how to enable the vision despite new challenges. The variables of the ALL can be managed to cause tremendous thought stress.

*Preparation of Leaders* provided the foundation for subsequent structured learning opportunities suggested for KM/BCKS, and which are explicit in creating intensive collaboration. One of the learning model guidance recommendations was to “foster commander-dominant digital organizations.” In another guidance recommendation, CLTs are foreseen explicitly:

The preparation of the commander team (brigade, battalion, company) to think and execute rapidly—almost as one mind linked by shared confidence, competence, vision and trust, reinforced by common drills as much as by

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24 Benson, William, “Operational Thinking in a Tactical Environment and Targeting in Iraq,” ARMOR. May-June 2004, p. 12.

improved communication—is a central leader responsibility. The learning objective is shared, complementary “instincts” of both opportunity and of danger.<sup>25</sup>

*Preparation of Leaders* laid out a new framework for leader preparation, which included adding self-development and teams into the current learning matrix of individual and collective training in the institution and unit; addressing leader teams as well as leaders; considering the complexities of preparing leaders for the art of command as well as for the science of control; and realizing a conceptual framework for addressing adaptive leader preparation. However, the document did not address JIIM organizations, nor did it address the various authorities and responsibilities associated with diverse leader teams that influence team preparation. There was also no explicit focus on CLTs as a broad group—all leaders, corporals and above—which means most of the Army. Those aspects were developed in the follow-up document, *Vertical Command Teams*, which addressed preparing high-performing vertical command teams.

## D. Vertical Command Teams, 2002<sup>26</sup>

This document proposed a model or roadmap for developing high performing command teams. Three major elements formed the model:

- **Vertical:** Demonstrating effective control in a hierarchical organization, always under great stress.
- **Command:** Preparing effective commanders.
- **Teams:** Building effective command teams.

“This roadmap is more than a discussion of an approach. It is a conceptual model of practical Army policies and programs that prepare high-performing vertical command teams. Executing each step of the model should develop high-performing vertical command teams. Step design was influenced by several major considerations:

- Creating high performing vertical command teams requires developing each element—vertical, command, and teams—then grouping them within an overarching preparation framework, combining effective control, effective individual command, and finally effective building of command teams.

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<sup>25</sup> Brown, 2000, p. VI-27.

<sup>26</sup> Brown, Frederic. *Vertical Command Teams*. IDA Document D-2728. Alexandria, VA: Institute for Defense Analyses, June 2002.

- There are three distinct frameworks for vertical command performance: chain of command, chain of coordination in joint and coalition operations, and chain of functional support consisting of both commanders and staff officers (officers and non-commissioned officers).<sup>27</sup> Chains of functional support are usually established in functional areas such as fire support or intelligence. Each of the frameworks needs to be developed in the model.
- Command team performance requires improved teamwork, better team decision-making, and better team leadership. Only team leadership is discussed here. Team leadership combines all other model components to create a whole greater than the sum of the parts. For creating and sustaining commander teams, team leadership includes developing and sustaining shared vision, shared trust, shared confidence, and shared competence.

There are three distinct steps to prepare high-performing command teams:

1. Develop leaders who effectively share command responsibilities and authorities between echelons. These leaders apply known inputs in processes of direction, co-option, or cooperation to create effective multi-echelon control of military operations. The adequacy of that control can be assessed by suggested measures.
2. Prepare commanders as individuals to exercise responsibilities within a chain of command, a chain of coordination, or a chain of functional support. The commander (and staff leaders where appropriate) must be developed in accordance with the doctrine, established authorities, and agreed responsibilities described for each of the three chains. Processes for the appropriate exercise of command are described—both those common to all three chains and those unique to just one. Essentially the processes are those described in FM 22-100, *Leadership*, and those proven necessary to develop individual proficiency in the art of command. The output is effective individual command of military operations. Various performance assessment tools are suggested for each of the three chains.
3. Translate competent individual command performance to team performance. Team proficiency requires excellence in teamwork, team decision-making and team leadership. Improved leader teamwork and team decision-making are the objects of continuing research by the Cognitive Engineering Science and Technology Objective. Therefore, their importance is acknowledged but they are not discussed further.<sup>28</sup> Team leadership consists of shared trust, vision,

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<sup>27</sup> Subsequently included in FM 6-22, *Army Leadership: Competent, Confident, and Agile*, pp. 3–9, paragraph 3-52, Oct 12, 2006.

<sup>28</sup> Much improved doctrine supporting teamwork and team decision-making is in Army FM 6-0, *Mission Command* and FM 6-22, *Army Leadership: Competent, Confident and Agile*.

competence and confidence. It must be developed for each of the teams. A way to develop each and appropriate assessment measures is proposed....”<sup>29</sup>

The challenge addressed explicitly above is preparing high performing vertical command teams. A central awareness that emerged in this document was the importance, if not dominance, of leader teams.<sup>30</sup> These are not simply teams having leaders, rather they are teams that are composed of all leaders, i.e., leader teams, the most important of which are teams of commanders, the chain of command. Teams of leaders possess an advantage over individual leaders. Furthermore, this advantage increases exponentially via the connectivity and collaboration offered by today’s communication networks and in turn generates shared knowledge and understanding across leader team members. That insight followed preparation of *Vertical Command Teams*. From that came the BCKS term, Commander Leader Teams (CLT).<sup>31</sup> All Soldiers, Corporal and above, are leaders; the most important leaders are commanders.<sup>32</sup> As the commander team practices team leadership, shared vision and shared trust ensure a positive, reinforcing effectiveness multiplier up and down echelons. With vision, trust, competence, and confidence shared throughout the chain of command, each individual commander’s effectiveness is reinforced, because both superior and subordinate commanders share the understanding appropriate to acting in reinforcing harmony.<sup>33</sup> Through shared SKA, the chain of command becomes a whole greater than the sum of the capabilities of individual commanders.<sup>34</sup> There is similar reinforcement among peer teams of leaders, such as unit staff officers sharing team

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29 Brown, 2002, pp. I-7, 8.

30 Reinforced with emphasis in FM 6-22, *Army Leadership*, pp. 3–8, paragraph 3-48.

31 I am not describing good or poor teams with good or poor leaders. Rather, these are teams of leaders, some of which are teams of commanders. The team’s quality is determined by the extent to which its members, individually and collectively, practice shared SKA, team decision-making and, arguably most important, team leadership when vision, trust, competence, and confidence are also shared. Within the framework of teams possessing these SKA will be a spectrum of leader team quality. Better teams should become high performing. The challenge of AKO/BCKS is to accelerate that transition.

32 This implies that teams of Corporals need to be prepared just as do teams of more senior leaders to practice teamwork, team decision-making, and team leadership.

33 There are numerous SKA associated with developing leaders as individuals and as members of teams of leaders. These four—vision, trust, competence, confidence—are selected based on personal observation at CTCs and discussions with senior officers and NCOs. The primacy of these four should be reconfirmed as the processes of developing HP CLT are honed in complementary development programs. See Section VI.

34 The processes of developing shared SKA are described in Appendix J.



leadership. At the most basic, small leader team level, an Armored Fighting Vehicle (AFV) commander or pilot fights with a teammate, his wingman; he is not alone, his partner covers him. The tougher the combat, the more the Soldier (leader) seeks the security and support of teams. Intensive collaboration through AKO/BCKS can reinforce that bonding.

The roadmap or model described in *Vertical Command Teams* is necessary but not sufficient to address leader requirements that were unforeseen pre-9/11 for fighting the GWOT. The United States needs to routinely build very high performing, highly distributed leaders and leader teams. It must be a decentralized response to accommodate an enormous diversity of potential situations: a response so dominant—clearly benefiting individual and team performance—that an extremely “busy” force of passionate officers and non-commissioned (NCO) leaders could and would assimilate it.

Applying the model needs to be expanded from commanders in vertical command teams to all combinations of groups of leaders—officer, NCO, civilian, Army, JIIM—working together, grouped or distributed virtually, during peace or war, in hierarchical or peer relationships, or in various combinations of vertical and horizontal teaming relationships.



### III. CLTs—Where We Are Now

A consistent challenge in CLT development is that teams have been largely overlooked in both theory and practice. Nor have they been recognized as an important multiplier of data and information to accumulate the shared knowledge and actionable shared understanding that are the foundations of high performance.

A significant insight with respect to leader development has been realizing the importance of preparing leader teams. Individual leaders (commanders in particular) are clearly very important in a commander-dominant hierarchical military organization, but the importance of the individual grows exponentially in the context of continually changing net-centric teams sharing data, information, knowledge, and understanding. Effective leader teams (grouped physically, dispersed virtually, or a combination) with clearly established authorities and responsibilities are central to conducting successful global net-centric operations. Therefore, it is appropriate to look much more closely at various families of leader teams (e.g. teams of commanders or staff leaders or NCOs) to develop appropriate policies and programs that greatly improve leader team performance and develop high performing leader teams. The focus is on the Army, but the greatest payoff in the GWOT is likely to be in Joint, Interagency, Intergovernmental and Multinational organizations, respectively. The Army presents the less complex cultural challenge due to extraordinary emphasis on developing shared warrior values; however, as rapidly as is feasible, the effort must incorporate JIIM organizations for the greatest national payoff.<sup>35</sup>

Unfortunately, doctrine with respect to CLT is sparse. FM 6-0, *Mission Command: Command and Control of Army Forces* describes the functioning staff as a “cohe-

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<sup>35</sup> JIIM CLTs are discussed later in more detail. There appears to be substantial intergovernmental opportunities to improve collaboration and performance as discussed by the 9/11 Commission. Interagency requirements also abound in emerging Army stability operations missions. See DoD Directive 3000.5, Subject: Military Support for Stability, Security, Transition, and Reconstruction (SSTR) Operations, 28 November 2005

sive team.”<sup>36</sup> It acknowledges the importance of building teamwork, but then defers to FM 22-100, *Army Leadership* by stating, “The fundamentals of building teams, essential for mission command, are contained in FM 22-100.”<sup>37</sup>

FM 22-100, *Army Leadership*, is discussed extensively in an earlier IDA document, *Vertical Command Teams*. FM 6-22, *Army Leadership: Competent, Confident, and Agile*, which supersedes FM 22-100 and was published in October 2006, is an excellent manual with increased discussion of leader teams. *Vertical Command Teams* suggests additions to SKAs for teams in general and acknowledges the characteristics of chains of command, chains of coordination, and chains of functional support as defined in *Vertical Command Teams*. Conceptual development addressing CLTs was underway when FM 6-22 was being prepared, although much of the focus is on attributes and core competencies of an individual leader performing with others in a team context, not the leader possessing separate and distinct team SKAs shared with other team members.

Teams are conspicuous by their relative absence in FM 7-0, *Training the Force*, and FM 7-1 *Battle Focused Training*. The first chapter of FM 7-0 addresses “How the Army Trains.” The Army is described as “Soldiers, leaders and units” in “operational, institutional and self-development domains.” The sole mention of teams is “NCOs train individual Soldiers, crews and teams.”<sup>38</sup> In FM 7-1, there is a slight expansion to “NCOs train individuals, crews and small teams.”<sup>39</sup> These are vital teams to be sure, but not teams of leaders that can address and overcome complex leader challenges. However, in the FM 7-1 annex addressing leader preparation, the issue of teams of leaders is addressed explicitly. “Very high performing leader teams must develop teamwork, team decision-making and team leadership.”<sup>40</sup> Unfortunately, there is no elaboration about what to do or how to do it in order to prepare these high performing leader teams.

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36 US Army, FM 6.0, *Mission Command: Command and Control of Army Forces*, HQDA, Aug 11, 2003, pp. 5–21, 11.

37 US Army, FM 6.0, pp. 4–70

38 US Army, FM 7-0, *Training the Force*, HQDA, Aug 2003, pp. I–5, I–14, 11.

39 US Army, FM 7-1, *Battle Focused Training*, HQDA, Sept 15, 2003, p. 2.2 paragraph 2-5. Staff teams are not discussed explicitly.

40 US Army, FM 7-1, Annex A, p. A-5, paragraph A-21.

There is no common doctrine or TTP today specifying prioritized ways to restore a chain of command broken suddenly by casualties. For example, what should the Company Commander in combat do first to reestablish the immediate Company Commander-First Sergeant team when his or her previous First Sergeant is killed in action and replaced from outside of the battalion? Or Company Commander and Fire Support Team Leader, or Platoon Leader-Platoon Sergeant or...? Current doctrine simply doesn't address leader team interactions—Army or JIIM.

Yet, few if any leaders become high performing warfighters by acting solely as an individual. The power and quality of high performance normally grows in a team context—competent individual leaders acting as members of multiple teams, inspiring others to exceptional performance. Some teams are long-lasting, others are transitory and created to accomplish an immediate mission. That applies to both horizontal (peer) and vertical (hierarchical) teams and to various *ad hoc* combinations of the two. All teams of leaders are clearly important. In the warfighting Army, commander teams are the most important. Therefore, the focus of this document is on the CLT.

The heart of this document describes molding BCKS to routinely create and sustain high performing CLTs—as envisaged briefly in FM 7-1. This document describes the various components of BCKS and how CLTs, SPFs, and KNs should interact and expand, each individually and synergistically with the other, often in continuously evolving ATs. ATs are formed among and between commanders and leaders in various CLTs, SPFs, and KNs stimulating increased, intensive physical and virtual data, information, knowledge, and understanding interactions. When stimulated by a ubiquitous, security-protected network, these interactions generate intensive collaboration that generates shared SKA and in turn creates HP CLTs possessing shared knowledge and actionable shared understanding.

The processes of developing HP CLTs are described as they might have occurred had the current AKO/BCKS model been fielded in a combat battalion.<sup>41</sup> Developed at the request of the then-DA G-3 during the BCKS program approval process, this OIF scenario has become a descriptive focal point for BCKS development. Appendix E is a product of close, personal collaboration between myself, and DA G-3, DA G-6 and Commanding General (CG), Combined Arms Center (CAC),

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41 1st Bn, 41st Infantry (Mechanized) (1-41 Mech) in the first rotation of Operation Iraqi Freedom (OIF1).

Ft. Leavenworth personnel. In describing events before, during, and after the tactical pause in OIF1, various situations were depicted to stretch the scenario to reflect the foreseen characteristics of BCKS.<sup>42</sup> The situations involved the combat losses of a line company commander, a line company first sergeant, and the Battalion S2.<sup>43</sup> In addition, the scenario includes several cases of executing TTPs poorly to include employment of fires in a battalion hasty breach, casualty evacuation (CASEVAC), and slow battle damage and repair of Abrams tanks.<sup>44</sup>

At this point, to better understand SPFs, KNs, ATs, CLTs and their potential interactions, the reader is advised to read Appendix E and then Appendix F, which together describe the various 1-41 Mech actions in the context of the processes of the BCKS model. Appendix F also explains the process of developing HP CLTs through the intensive peer and horizontal collaboration that generates shared SKA for HP CLTs. The rate at which a HP CLT develops is determined by the extent to which the SKAs of trust, vision, competence, and confidence are shared among and between each CLT member. Absolute, 100% agreement—complete overlap if each SKA of each CLT member were considered as in a Venn diagram—seems unlikely. More overlap of SKA is better. A central challenge of AKO/BCKS is to accelerate the convergence of SKA overlaps across the CLT.

Like a nuclear chain reaction “going critical,” value is added arithmetically then logarithmically as the CLTs get better and better by drawing on SPFs, KNs, ATs and each other to a point of extraordinary excellence—where a “wink and a nod” can replace lengthy planning. To extend the nuclear analogy, when there is a sustaining chain reaction, CLT high performance is achieved. It gets better and better as long as the team is stable and effective team leadership is sustained. Stimulated by the team’s recognition that shared knowledge and understanding improved performance, the

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42 The scenario in Appendix E is structured to reflect a fully developed BCKS supported with appropriate IT. The level of IT support assumed for 1-41 Mech far exceeds the bandwidth then available at the brigade or battalion echelon. Superior IT and KM are mutually dependent on the capabilities of each other. Both are necessary to realize the HP CLT inferred in this example.

43 An actual leader in 1-41 in OIF commented later that there had been extensive succession of command training before OIF. The succession processes would therefore not have been as complex as portrayed in the scenario.

44 The current mid-intensity focus of the 1-41 Mech scenario needs to be complemented by portraying a light battalion in OIF2 facing counter-terrorist, counter-insurgency, and stability and support operation challenges. Appendix K is a discussion of CLT development in a JIIM drug enforcement operation.

shared vision, shared trust, shared competence and shared confidence are maintained and, in fact, improve steadily.

CLTs need to work consistently and assiduously to improve team leadership. It is difficult enough to sustain CLTs when the teams are stable. Unstable Army and JIIM CLTs, particularly across cultures, can quickly lose high performance unless there is consistent, effective reinforcement. This makes the case for stabilizing Soldiers and units in the Brigade-centric modular force—a central strategy in the current Army Plan.

The process of developing HP CLTs generates increased shared understanding and combat effectiveness that are characteristic of HP CLTs. There seems to be an important spiral of improving combat performance. The keys are to develop a process to generate SKAs that are overlapped within a CLT and to institutionalize the process for both Army and JIIM CLTs. Appendix J provides one way to do that within the Army.

Useful support to the spiral of improving performance could be provided by capitalizing on synergies present with other on-going innovative efforts, such as the synergy of CPoF, the ADLS, and AKO/BCKS in addressing improved individual leader and leader team performance in digitized units. Each can reinforce the other. For example, CPoF, which the 1<sup>st</sup> Cavalry Division (1CD) used successfully in OIF2, envisages “*Liquid Information*: Enable Commanders to access, view, configure and tune data, visualizations, workspace, and processes in ways that support their thinking” and “*Thought visualizations*: Computer as an instrument for artists (tactical) to express thoughts and understandings.”<sup>45</sup> This conceptualization absolutely reinforces BCKS.<sup>46</sup>

There is similar synergy with the ADLS which envisages, *inter alia*:

“At this highest ‘hyper-proficient’ level of proficiency, high performance organizations are discovering new ways to do new things—executing, modifying, and redoing. They are improving things as they go along through reflective thought combined with interactive, intense, immersion-based ex-

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45 DARPA, “CPoF Overview,” briefing, Jan 24, 2004, slide 14, and “Army Touts Satellite Linked Battle Planning System,” *Army Times*, Oct 23, 2006.

46 This conceptual framework has been expressed well recently, relating concept maps to operation order development. Robert Hoffman and Lawrence Shattuck, “Should We Rethink How We Do OPORDS,” *Military Review*, March-April 2006, pp. 100–107.

perimental observation, then by execution. They routinely modify TTP as greater situational awareness develops.” The objective is “...the sustainment of hyper-proficient individuals, teams, leaders and small units despite combat and peacetime turbulence and turnover...”<sup>47</sup>

This is another complementary approach to the same HP CLT development and sustainment issues that BCKS addresses. The synergy is there for generating overlapping SKA. It just needs to be stimulated and then applied.

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<sup>47</sup> Deputy Chief of Staff for Training, US Army Training and Doctrine Command (TRADOC), Army Digital Learning Strategy/Digital Division Learning Program. Sept 28, 1998.



## IV. CLTs—Where We are Going: HP CLT Through Intensive Collaboration That Generates Shared SKA

The objective of BCKS is to help develop performing individuals, teams, and thus units by enabling routine vertical and horizontal communication to generate shared knowledge and actionable shared understanding. HP CLT are created and sustained by simultaneous, not sequential, interactions of intensive collaboration that generates shared SKA, resulting in shared knowledge and understanding within and between SPFs, KNs, ATs, and CLTs. This is accompanied by continuing introspective test and evaluation and the spiral development and improvement of “best practices.” The spiral is perhaps describes as a “crawl, walk, run” sequence, but more likely it consists of episodic breakthroughs stimulated by improved learning processes that draw upon AARs of current unit activity. All draw on the breadth and depth of shared warrior values present in America’s Army.

Predictable breakthroughs seem unlikely. They will probably be propelled more often by individual leader and leader team insights, stimulated by the pressures of intensive training or combat. Nevertheless, it seems likely that more frequent breakthroughs could be enabled by adapting proven learning aids such as designing context-based scenarios or vignettes (eTDGs) or by modifying AAR processes to hone SKAs related to intuition-based decision-making.<sup>48</sup> More likely, breakthroughs will be enabled by exploiting the great learning strengths of the CTC model, particularly scenario design, independent observation and assessment, and AARs, in whatever form they may assume.

There are at least two components to generating intensive peer and hierarchical collaboration to create HP CLTs: (1) continuous interaction designed to increase

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<sup>48</sup> FM 6-22, *Army Leadership*, expounds on attributes and core competencies. It is excellent doctrine primarily focused on leaders as individuals. I use SKA that in fact appear more appropriate to CLTs rather than to individual leaders. SKA of shared trust, shared vision, shared competence and shared confidence—all shared among each member of the CLT.

overlap of SKAs among and between leaders in SPFs, KNs, CLTs, and ATs; and (2) encouraged use of introspective team learning aids stimulating shared knowledge and understanding, such as individual leader and LTXs that draw on eTDGs, and learning support processes focused on intuition-based decision making. An example is the BCR, which focuses all variations of leader teams on developing SKA to improve individual performance within the context of team performance. Using Army learning system processes, such as leader team development exercises with AARs that draw on learning support such as eTDGs to support team learning, the BCR is a deliberate extension of current, mature AAR practices. It is a form of AAR designed to stimulate generation of HP CLTs or to accelerate regeneration after personnel instability.

These learning processes may be less training programs than windows to shared, professional self-interest stimulated by routine participation in SPFs (peer and hierarchical), ATs, and KNs that are shaped to increase shared trust, vision, competence, and confidence. Because BCKS exploits professional self-interest and increases the flow of data and information to generate shared knowledge and understanding, high performance becomes highly likely as long as the team is reasonably stable. A central difference from past unit training practices is that team development is a specific desired outcome of focused programs, not a “casual” development.

A central insight of this paper is that intensive collaborative processes that generates shared SKA can be developed through BCKS to create very high performing leader learning and teaching venues. It will be achieved most effectively only when BCKS Blocks 1, 2, and 3 (leaders and teams of leaders in SPFs, KNs, ATs, and CLTs) are functioning well across common operating environments (COEs). Tools built upon proven practices of the Army Training System (ALLs, LDXs/LTXs, eTDGs, BCRs) can accelerate the formation of intensive collaboration that will generate shared SKA and provide assessment measures. “Best practices” tools need to be developed or resurrected.<sup>49</sup>

The intensive collaborative processes that enables the sharing of data, information, knowledge, and understanding are described briefly in Appendix F in the example from the 1-41 Mech’s hasty breach of an obstacle. Each echelon and each bat-

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<sup>49</sup> The School of Command Prep has conducted excellent leader development that is now available to address HP CLT formation. See Appendices G and H.

tlefield operating system (BOS) will develop appropriate “best use” examples that support particular high priority requirements. They will be significantly different, but likely uniformly supportable within the BCKS model due to the paradigm’s strength. However, practically and inevitably, intensive collaboration that generates shared SKA in globally-distributed CLTs will be unpredictable at lower echelons—perhaps below battalion, certainly below company—for the near term, because fully effective intensive collaboration draws on responsive, secure, global reach. That is why both IT and KM must develop in parallel for HP CLTs to become consistent, predictable capabilities. It is certainly desirable, but likely feasible in the near term only in Special Operations units. Solid practical BCKS development proceeds now with forces in Iraq and Afghanistan, but important operational security (OPSEC) challenges are still being addressed.

## A. Operational Security

OPSEC seems certain to be a significant issue for BCKS supporting the GWOT. Challenges relate largely to unclassified data, information, and knowledge that become classified as their tactical value increases when passing through SPF or KNs to CLTs in a combat theater of operation. This is not a problem with classified content; it is transmitted on secure communication nets. The importance and value of data, information, and knowledge might increase the level of classification, but at least the basic security is present on a secure network. This is not the case with clearly unclassified content, which SPF, KN, AT or CLT intervention can quickly cause to become classified. Serving leader comments boost the warfighting value of professional dialog occurring in SPFs or KNs. Vertical and horizontal exchanges enabled through intensive collaboration can flow rapidly, but somewhat unpredictably, as new participants discuss subjects that quickly become classified when they describe TTP about to be employed in combat.

Clearly the first line of defense must be the users as they assess the sensitivity of data, information and knowledge. Informed local judgment must act to restrict access when unclassified observations become classified TTP. SPF or KN facilitators can intervene and move a discussion thread to the Secure Internet Protocol Router Network (SIPRNet) when the leader or other SPF or KN participant judges the content to be

classified<sup>50</sup>. Most importantly, all participants must be conscious of the OPSEC threat and work as a team to protect TTP security.

Learning experiences can be structured to minimize the problem. For example, Mission Rehearsal Exercises (MRX) can address appropriate tasks, conditions, and standards in theater but with specific location offsets so that the exercise and associated BCKS remain unclassified. The culmination of the MRX or of a series of multiple mini-MRXs, either grouped physically or linked virtually, to sustain HP CLTs could be a clearly separate classified MRX drawing on actual conditions in the objective theater just before deploying. Right-seat rides using BCKS capabilities conducted with leaders in country to learn METT-TC<sup>51</sup> specifics clearly would be classified.

Another strategic OPSEC issue is raised by the characteristics of BCKS. That issue is whether the Army will be “closed” or “open” to professional discussion in both the institution and units. There are no easy answers. Stifling highly decentralized professional discussion in the gym, at the bar, at parties, at brown bags, on blogs, in SPFs or KNs, in thousands of Armories or Reserve Centers, etc., would be to the serious detriment of Army capabilities. Army growth, adaptability and professional competence would be reduced considerably. BCKS exists to expand just these sorts of exchanges that eventually lead to shared understanding.

Certainly we are at war. Yes, inadvertent slips may cause soldier deaths. Certainly Al Qaeda is competent—past reconnaissance of financial institutions is a great example. But maintaining an “open Army”—free and encouraged to exchange ideas and grow from diverse experiences of leaders at all grades—is an important, long-term strategic issue similar to issues of free press and protecting civil rights at war. BCKS stands at the center of this.

An “open Army” has to include family access that permits family members to sign on to AKO so they can communicate easily and frequently. This creates an OPSEC issue. If accessing and using AKO is made too difficult, family members will blog “unprotected.”

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<sup>50</sup> Classification determination is made by selected officials to whom “original classification authority” has been delegated. What is needed, and frequently unavailable, is classification guidance.

<sup>51</sup> METT-TC is an acronym for Mission, Enemy, Terrain and Weather, Troops—Time Available, and Civilian Considerations.

## B. Collaboration in JIIM Organizations

Continuing to test and evaluate these intensive collaborative processes seems especially necessary in JIIM organizations in likely COEs. Initially, there are fewer existing SPFs, KNs, ATs or CLTs available in JIIM organizations to support the intensive collaborative processes necessary to develop HP CLTs. There is no assurance that even a rudimentary leader team exists across the many dimensions of cultural differences present in JIIM organizations. Ethnic, religious, military, business—each of these groupings has different organizational cultures that need to be bridged before high performing teams can even be contemplated.

At a minimum, it seems essential that some basic degree of team leadership must be established as a pre-condition, particularly shared trust and shared vision. Further, JIIM organizations appear to be highly variable in composition, which complicates collaborative processes as various SPFs, KNs, CLTs, and ATs form and reform in shifting modular reorganizations. Joint SPFs, KNs, ATs, and CLTs, for example, may require separate, more elaborate, intensive collaboration processes to generate HP CLTs.

To be effective in JIIM organizations, intensive collaboration needs both creation and sustainment support that can be provided through the stimuli of repetitive experiential learning and teaching tools. Examples could be frequent introspective LDX and LTX plus BCRs backed by appropriate eTDG, all shaped for JIIM applications and all with explicit command support. MOP/MOE associated with these learning tools provide assessment measures of leader team progression through intensive collaboration to high performance. Tools available for intergovernmental and multinational CLTs will likely be far fewer.

Intensive collaboration simply won't happen without thoughtful, consistent nurturing of the various chains of command that recognize the value of possessing HP CLT in JIIM organizations. It should be recognized at a minimum that BCKS will open up multiple communications channels thereby increasing the likelihood of disrupting, and possibly eliminating cultural barriers. Clearly, consistent with the proven “crawl, walk, run” instructional sequence, best practices should be developed within Army organizations before proceeding to JIIM organizations. But it must be recognized that JIIM cultures, particularly the intergovernmental and multinational, will vary. Finding one clearly dominant “best way” process to stimulate intensive collaboration seems

highly unlikely. Appendix K contains an extended discussion about generating team leadership SKA in JIIM HP CLTs, using a drug enforcement scenario.

Intensive collaboration that generates shared SKA is created through multiple interactions among and between:

- Expanding SPFs of “passionate professionals” eager to help each other.
- Multiple KNs created by TRADOC and other proponents or BMA domains to provide data, information and knowledge that support the institution and units/organizations.
- CLTs established (vertical-hierarchical and horizontal-peer) and teams created *ad hoc* (modular, expeditionary, etc.) that are responsive to warfighting such as chains of functional support formed in ad hoc task organizations.
- ATs with leaders (including commanders) grouped to solve problems. Characterized by shifting composition and purpose, leaders and leader teams continually pass to one another data, information and knowledge that is essential to problem solving. ATs may or may not exist long enough to generate the overlapping SKAs necessary to become CLTs.

Central to understanding the concept of collaboration are the many overlapping SPFs, KNs, CLTs, and ATs with active participation of each leader in Army units. In a mature BCKS, a typical armor or infantry battalion commander would likely belong simultaneously to: 3-5 SPFs, 1-3 KNs, at least 3 CLTs (chain of command, chain of coordination, chain of functional support), and 5 ATs (most likely of varying composition based on current missions/challenges). See Appendix F for examples. Such overlapping KM tools will be far less likely in, within, and among JIIM CLTs. High performance will likely come from intensive shared SKA developed within and sustained by a particular CLT. Extended focus on stability operations with inherent significant JIIM participation may stimulate extensive JIIM SPFs, KNs, CLTs, and ATs, but that seems likely to become more slowly than expansion has been to date in America’s Army.

So what is a high performing warfighting organization—the desired objective of HP CLTs? Certainly there would be a high percentage (70% plus) of mission relevant tasks performed to standard under very challenging conditions.<sup>52</sup> That seems

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<sup>52</sup> It is difficult to maintain the currency of task, condition, and particularly standards when TTP change as rapidly as in Iraq. Wallace, William S., LTG, CG, CAC, conversation with author, July 30, 2004.

necessary, but not sufficient. High performing organizations “are discovering new ways to do new things.”<sup>53</sup> The often unpredictable combination of contributions from competent teams of warfighters interacting to share data, information, knowledge, and understanding generates high performance. Unit performance suddenly improves and both the effectiveness and efficiency of CLT performance increase significantly.<sup>54</sup>

While descriptions of high performing teams differ from objective quantification of task proficiency to subjective certainty of excellence, one aspect remains the same across all Army units: the desire to rapidly achieve and sustain high performance despite the enormous friction of combat. KM/BCKS supported by highly responsive IT/AKO responds to and supports that desire for cascading excellence. Comparable desire may not initially exist in JIIM CLTs; the challenge there is to generate “bare-bones” shared SKA—particularly shared trust—to build upon. This is a substantially more difficult task, but the tools and processes should remain essentially the same.

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<sup>53</sup> Brown, 2000, p. V-3

<sup>54</sup> I was privileged to belong to several high performing organizations over the years. We frequently lauded our “effortless superiority”—an oxymoron, but dominant superiority does escalate.





## V. Enablers that Generate HP CLT

The decisive enablers that generate HP CLTs are combinations of IT (AKO) and KM (BCKS), which support intensive collaboration required to achieve shared SKA. Working together, IT and KM provide critical opportunities, but learning and teaching tools are needed to transition from CLTs to HP CLTs. Such tools include an Adaptive Leader Learner (ALL), Leader Development Exercises/Leader Team Exercises (LDX/LTX), Battle Command Review (BCR), and electronic Tactical Decision Games (eTDG). These are essentially extensions or adaptations of excellent training and learning systems currently being developed to support the U.S. Army Forces Command/ TRADOC ARFORGEN Road to Deployment as part of the strategy in the Army Plan to “Train and Equip Soldiers.”

An abiding central leader and leader team development challenge is to determine how to convert the beneficial but unpredictable progression to HP CLTs in warfighting organizations to an expected, predictable outcome using BCKS in both Army and JIIM organizations across COEs. That expected progression to “high performing” or “hyper-proficient” is nothing new: it is shared with the culminating step of the 1998 ADLS vision. The BCR suggested below is one way to address HP CLT, aka ADLS Step 3, as described in a 1998 TRADOC DCS-T communication:

Step Three. The objective of step three is to develop highly adaptive, “hyper-proficient” individuals, small teams, leaders, and units competent and confident to perform current and anticipated new Army XXI missions differently, advantaging their increased situational awareness to an objective state of tactical situational dominance. At this highest “hyper-proficient” level of proficiency, high performance organizations are discovering new ways to do new things—executing, modifying, and redoing. They are improving things as they go along through reflective thought combined with interactive, intense, immersion-based experimental observation, then by execution. They routinely modify tactics, techniques and procedures (TTP) as greater situational awareness develops. The desired outcome is significant refinement and improvement in TTP of tactical mission execution as individuals, teams, leaders and units become increasingly competent and confident at the mastery level of proficiency (or above), creating situational dominance over the enemy.

The specific objective of step three learning in the institution is hyper-proficient individuals who know how to create and sustain hyper-proficient teams and ultimately units. For units, the specific objective of step three learning is the sustainment of hyper-proficient individuals, teams, leaders and small units despite combat and peacetime turbulence and turnover...<sup>55</sup>

High performing CLTs are a shared goal of all tactical unit commanders in combat, combat support, and combat service support units. There are numerous examples, past and present. LTC Creighton Abrams clearly created a high performing battalion, the 37th Armor Battalion, at Bastogne, Belgium in World War II. Special Forces units are consistently high performing. Before BCKS, transition to high performance occurred often in units by repetitively pursuing leader and leader team development processes that were proven through years of experience. There were excellent examples in the Army Warfighting Experiments leading to the Digital Division. Among other things, transitioning to high performance occurs by developing leader teams practicing solid teamwork, team decision-making, and team leadership in intensive, repetitive, experiential learning programs.

What is genuinely new and vitally important to success in the varying COEs and JIIM organizations of the GWOT is the certainty of change: New teams of leaders in new modular organizations grouped to conduct decisive offensive, defensive, and stability operations in often highly unpredictable situations. HP CLTs must be created effectively, hopefully efficiently, certainly quickly, and often during combat operations. BCKS addresses these requirements in the 1-41 Mech scenario in Appendix E and the scenario for JIIM stability operations in Appendix K.

Candidate developmental processes are discussed in *Vertical Command Teams*,<sup>56</sup> or as envisaged above in the ADLS. What is new is that through new learning tools that encourage intensive collaboration, using BCKS increases the likelihood of developing high performance in average units and accelerates the rate of transforming routine CLTs to HP CLTs, because it stimulates the intensive peer and hierarchical collaboration that generates shared SKA as described earlier.

How can beneficial BCKS practices be institutionalized? By drawing on proven, current Army Training System policies and programs like the CTC training model

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<sup>55</sup> Deputy Chief of Staff for Training, US Army Training and Doctrine Command (TRADOC), Army Digital Learning Strategy/Digital Division Learning Program, Sept 28, 1998.

<sup>56</sup> Brown, 2002.

being implemented in the ARFORGEN Road to Deployment. This is a solid training process that is not only very effective—the global “best”—but also absolutely institutionalized across an extremely diverse and global force. Taking advantage of a solid institutionalized Army Training System seems to be a central requirement. After all, it works superbly and is well understood by Soldiers.

There is a derivative requirement to embed learning and teaching tools in the intensive collaboration process that generates shared SKA in order to speed up and increase the probability of timely transition to high performing teams. The challenge is to create new tools within the framework of the current Army Training System that don’t compete with already superb training to task, condition, and standard, but instead support training by generating overlapping SKA to accelerate converting data and information to shared knowledge and understanding.

The five tools mentioned above—ALL, LDX, LTX, eTDG, and BCR—owe a conceptual debt to Gary Klein’s seminal work in the Recognition-Primed Decision-Making model, and more recently his work in the development of the precepts for conduct of intuition-based decision-making.<sup>57</sup>

## A. Adaptive Leader Learner

The ALL design introduced uncertainty and change routinely into the general training and learning strategy described in *Preparation of Leaders*.<sup>58</sup> The conceptual design drew heavily on the proven design of the AFV COFT, which presents increasingly complex target engagement scenarios to the vehicle commander and gunner team. The COFT assesses performance then provides remedial training scenarios until AFV crews reach very high levels of target engagement performance. ALL design drew on this, but shifted the conceptual focus from AFV team training to leader and leader team learning. After addressing the need to include the current METT-TC variables, ALL design added “... threat—organized, terrorist, criminals; predictable, unpredictable; smart, dumb; seasoned, green....Change can be predictable or unpre-

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<sup>57</sup> Klein, Gary. *Sources of Power. How People Make Decisions*. Cambridge, MA: The MIT Press, 1999. and also Klein, Gary. *Intuition at Work*. New York, NY: Doubleday, 2003. There is no inference that traditional planning processes associated with detailed command are no longer valid. They are clearly necessary, just not sufficient.

<sup>58</sup> Brown, 2000, pp. IV-4.

dictable, likely or unlikely, rapid or slow; explicit or ambiguous; important or trivial to the leader's task/purpose. These variations of volatility, ambiguity, uncertainty and complexity are enhancements...to start ALL development.”<sup>59</sup> Exercises can be tailored to offense, defense or stability operations. Whatever the COE, ALL exercises can be shaped to extend the individual leader or CLT well beyond comfort zones while learning the value of generating shared knowledge, then shared understanding.

By incorporating proven, accepted COFT training processes, ALL methodology appears applicable for both training the science of control and educating the art of command as mandated in FM 6.0, *Mission Command: Command and Control of Army Forces*. That dual application demonstrates, experientially, a useful learning method to generate the intensive collaboration and shared SKA that support HP CLTs. But it can only be implemented when linked to appropriate exercises that are effective, efficient, and institutionalized to prepare leaders and leader teams for executing the art of command and the science of control. This leads to the suggested individual-focused LDX and the team-oriented LTX.

## B. Leader Exercises

Training engineers of control has been the engine for success since superb Army training was developed in the 1970s–80s, and is now applied to net-centric warfare. The principles are embedded in Army training doctrine—task-based performance to standard, hands-on whenever possible, and generally supported by many rule-based decision aids. One of the best aids is METT-TC; another is the embedded “rock drill,” an elaboration of time-proven rehearsals.

Over the years, effective training exercises have succeeded in developing task proficiency through structured presentation of repetitive events. Lane training, Situational Training Exercises and various Mission Training Plans have all been successful, particularly when executed within the context of the CTC paradigm of Instrumentation System, OC, OPFOR, and AAR.<sup>60</sup> These extremely effective programs

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<sup>59</sup> Brown, 2000.

<sup>60</sup> For an early discussion on structuring training see Brown, Frederic. *Training Third Wave Landpower: Structured Training*. IDA Paper P-2947. Alexandria, VA: Institute for Defense Analyses, Dec 1993, Appendix 5, pp. 5-3–5-13.

continue, reinforced by combinations of live, virtual, and constructive simulations institutionalized in the evolving ARFORGEN Road to Deployment.<sup>61</sup>

## 1. Leader Development Exercise (LDX)

Explicit exercises focused on educating artists of command are a more recent learning program development. These were encouraged by academic research thoughtfully applied by the Army Training and Leader Development Panel several years ago in addressing “how to think” rather than “what to think”.<sup>62</sup> The Army Research Institute (ARI), Alexandria, Virginia, and the School of Command Preparation (SCP), Ft. Leavenworth, Kansas subsequently created several successful exercises designed to address this learning challenge.<sup>63</sup> Clearly, preparation in both “art” and “science” is embedded in assimilated exercises. These are successful, fully accepted LDXs that address both task training and competency-based learning, all in a context of developing shared knowledge and understanding.

LDXs can vary considerably in design. Principles governing preparation of artists of command are quite different from those that have evolved supporting engineers of control, particularly as Army digitization effectively increased structured training. Several proposed principles for preparing artists of command are:

- Present new, distinctly different combat variables, requiring the leader to adapt to be successful.
- Add volatility, ambiguity, uncertainty, and complexity to traditional variables of geography, weather, capabilities, TTPs, mission, and time.
- Inject change that is predictable or unpredictable, likely or unlikely, rapid or slow, explicit or ambiguous, and/or important or trivial to the leader’s task and purpose.

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61 The ARFORGEN Road to Deployment is discussed later as an application institutionalizing HP CLT development.

62 For an excellent summary of the Army Training and Leader Development Panel, see Joe Le-Boeuf. “Case Study No 3: The 2000 Army Training and Leader development Panel,” *The Future of the Army Profession*. Don M. Snider and Gayle L. Watkins, eds. New York, NY: McGraw-Hill, 2002, 487–504. This has been reinforced by the US Army, *Army Leaders For The 21<sup>st</sup> Century*, Review of Education, Training and Assignments for Leaders Final Report, 22 November 2006.

63 Appendix G discusses representative “best practices” observed at the SCP. Appendix H describes one excellent SCP exercise, “Duffer’s Drift.” Solid Interim Brigade Combat Team (BCT) leader exercises are described in Appendix I.

Each principle can be readily supported by learning exercises such as those in Duffers Drift, where the instructor or mentor varies the learning cues. Current LDXs seem quite capable of supporting both education in the art of command and training in the science of control for individual leaders.

Can exercise effectiveness preparing individual leaders be translated to effectiveness in preparing teams, particularly CLTs? This is a complex learning challenge because the range of hierarchical and peer leader teams can be quite wide in tactical organizations. The team most important to unit performance is the leader team, the unit chain of command. During discussion in July 2004, instructors at the SCP agreed that given sufficient learning support resources, Duffers Drift methodology seemed adaptable for multi-echelon teams of leaders. Current LDX cues can be varied to stimulate the development of team leadership and shared SKA. Teamwork could be taught. Team decision-making is embedded in current Army command and control doctrine, and TTPs for both detailed command and mission command. Teamwork and team decision-making are discussed thoroughly in FMs 6-0 and 6-22. This is not the case with team leadership; therefore, the focus here is on team leadership.

Considering the frequency of requirements for conducting leader team exercises, it seems appropriate to establish a new exercise. It will be difficult to routinely prepare chains of command, chains of coordination, and chains of functional support in units without an effective, low-overhead training exercise designed for both grouped and distributed team learning within a chain of commanders. The exercise for vertical command teams should address each of the elements of the Roadmap.<sup>64</sup>

There is nothing new here. Command and control are trained routinely and effectively in various exercises such as:

- Tactical Exercises Without Troops (TEWTs) focusing on leaders on actual terrain and personal (team) experiential learning.
- Map Exercises (MAPEXs) portraying multi-echelon military situations with complex joint, combined and civil governance.

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64 Brown, Frederic, *Vertical Command Teams*. IDA Document D-2728. Alexandria, VA: Institute for Defense Analyses, June 2002.

- Fire Coordination Exercises (FCXs) using substitution or simulation to stimulate leader team understanding of complex cross-BOS command and control requirements.

Solid research and development continues, stimulated by the pressure and visibility of the various CTCs and the Battle Command Training Program (BCTP).

## 2. Leader Team Exercise (LTX)

Command team building is, however, a generally under-developed training area. Teamwork, team decision-making, and team leadership need to be developed by a combination of task training and competency-based learning with rigor comparable to that used for command and control. Any new exercise should support each of these areas and be consistent with the ADLS discussed previously. The following design characteristics are suggested for a possible LTX:

- A new exercise, based on FM 7-1, Battle Focused Training, and extending the methodology of proven exercises to commander team preparation.
- Used to train vertical leader teams—the chain of command with Army units; the chain of coordination with joint and allied units and civilian organizations; and functionally-oriented vertical teams of staff leaders. Leaders are presented repetitive vignettes of increasingly complex events designed to create and sustain teamwork, team decision-making, and team leadership.
- Fully executable to standard by the particular leader team being trained. External expertise, for example presence of OCs, is not required though there should be opportunities for virtual mentoring/coaching as prescribed in ARFORGEN Road to Deployment Right-seat Rides.

Commanders may use LTXs to:

- Develop the chain of command into a high-performing team capable of effective team decision-making and teamwork.
- Present experiential leader learning opportunities developing individual skills (interpersonal, conceptual, technical, tactical).
- Present experiential leader team learning opportunities developing intensive collaboration that generates team leadership SKA—shared trust, shared vision, shared competence and shared confidence—and then shared knowledge and actionable shared understanding.

These purposes can be achieved through a variety of training strategies. Examples for implementing LTXs are:

- Conduct AARs of vertical command teams at least two echelons up and down with recommended discussion points. This is the methodology used successfully in the nested command team exercises conducted in Stryker Brigade Combat Team (BCT) development. Each AAR should address the extent to which intensive collaboration that generates shared SKA was evident in the exercise, as well as how to increase the sharing of SKA within the CLT.
- Rehearsals (Rock Drills) should include vertical chain of command (coordination and functional support) discussion of two or three unanticipated opportunities and two or three unanticipated challenges. Emphasize the importance of collaboration to generate shared SKA of team leadership within that CLT and the value of shared knowledge and actionable shared understanding that contributes to explicit success in operations.
- Conduct specific exercises to “reteam” (reestablish teamwork, team decision-making, and team leadership) after command team losses.
- Coach each vertical command team directly. Propose grouped or virtual sustaining training that includes team developmental responsibilities for the overall command team as well as individual leader development.
- Track leader team presence at LTX. If the actual team is not physically or virtually present – not accounted for, but present – the CLT has not been fully task trained and has not learned shared competencies necessary for high performance. While there are learning alternatives for certain leader team skills to be trained or sustained, it would seem to be quite difficult to establish a common team vision.<sup>65</sup>
- Generate the exercises by drawing on simple, easily replicable scenarios such as the various eTDGs being developed, particularly those incorporating participatory media such as avatars that can be enabled by IT.

In 2000, an excellent LTX was developed by then-BG Dubik for the Interim BCT at Ft. Lewis, Washington. Nested leader team training (aka chain training) vignettes were prepared for commanders at each echelon of command from brigade to platoon, addressing tactical, technical, conceptual, and interpersonal SKA. Chain of command teams would meet to discuss a common vignette on consecutive days. Typically, on Monday the Brigade Commander conducted the learning with subordi-

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65 To learn how crews and teams were tracked in the past, see FM 7-1, *Battle Focused Training*, pp. 4–5.



nate battalion and company commanders divided into teams to develop actions responsive to the vignette requirements. On Tuesday, the battalion commanders led with teams of subordinate companies and platoons. On Wednesday, the company commander led with teams of subordinate platoon and squad leaders. By Wednesday, not only had the company commander mastered the requirements as he or she led subordinates through the vignette, but the company commander also absolutely understood both brigade and battalion commanders' intent. This was confirmed through briefbacks and AARs. The result was that they significantly shared vision and competence and probably trust and confidence. (See Appendix I for a tactical vignette.)

Nested learning is superbly suited for CLT development. It seems particularly useful in developing team leadership. Repetitively reviewing a common scenario at each echelon of the chain of command can stimulate shared SKA of team leadership through the chain of command team.<sup>66</sup> Shared knowledge and shared understanding follow.

There are two major categories of LTXs—deliberate and hasty. The deliberate LTX is scheduled in advance and normally structured to provide a rich context that can support preparation of both command and control. It can draw on proven assessment MOP/MOE from cues embedded in the scenario.

The hasty LTX supports the unit in combat and teaches current tactical lessons learned and frequently changing TTP. There is shared context of on-going tactical operations. CLT learning priority is normally assigned by the chain of command. A current example of a hasty LTX is an in-theater “left-seat” commander teaching his/her “right-seat” command replacement, both individually and as part of a team. The highest payoff occurs when the current “left-seat” command team prepares the “right-seat” command team in team decision-making, teamwork, and team leadership appropriate to the local tactical situation.

Both LDX and LTX need to support the intensive peer and hierarchical collaboration that generates shared SKA. In addition, as described above, LTX must address both effective and efficient team preparation in SKA of team-decision-

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66 I observed this nested learning at 1st BCT, 4ID in preparation for the first Digital Brigade NTC rotation, then at the Interim BCT and later in Stryker BCTs in 2000 and 2002.

making, teamwork, and team leadership. Also, both LDX and LTX need to be responsive to rapid battlefield changes in local TTP, be as simple as possible and executable with low overhead, and permit rapid assessment of effectiveness.

There are several alternatives for designing LDX and LTX to support intensive collaboration that generates shared SKA across the components of BCKS, particularly for the CLTs on their path to becoming high performing.

- Several nested commander SPFs (Bde, Bn, Co, Plt) “fight” common eTDGs.<sup>67</sup> The chain of command, chain of coordination, or chain of functional support conduct AARs.
- Leader chains (CLTs) “fight” one common eTDG. SPFs or ATs of key leaders—commanders, Executive Officers (XOs), S-3s etc., conduct AARs.
- Deployed unit and replacement units “fight” a common shared eTDG, (e.g. “Think Like a Commander” or “Duffers Drift”). Conduct grouped or virtual shared AARs across SPFs or ATs that can, by design, support “battle hand-over” from the old unit to the new.

Both LDX and LTX can apply the learning principles of the ALL for individual leaders and teams of leaders.

An additional requirement is ensuring that the continuing development of AKO and BCKS provides capabilities to conduct LDX/LTX exercises either grouped or virtually, globally, using any combination of virtual or constructive simulation or gaming. The various SPFs and KNs need to be provided unclassified and secure learning and training tools such as streaming video currently associated with CTCs or Battle Simulation Centers at major installations.

There are useful precursors for emerging requirements. One is the expanding capabilities of the game *America's Army*. A second is the recently distributed FCS Future Force Company Commander (F2C2), a powerful emerging HP CLT-building resource to be supported by IT/KM.

F2C2 is a real-time tactical strategy game that allows you to learn about the Army's FCS program by giving you command of a Mounted Company Team in the year 2015. Through game play, F2C2 shows how FCS is designed to give the 21st Century Soldier unprecedented situational awareness and the ability to see first, understand first, act first, and finish decisively.

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<sup>67</sup> Because of their importance, eTDGs are discussed separately later in the document.

You'll experience an exciting range of real-time missions while equipped with the full spectrum of FCS capabilities. F2C2 shows the sophisticated sensors linked among the 18 different FCS systems, and how the FCS network quickly disperses tactical intelligence enabling Soldiers to pre-empt enemy attacks and mount offensive assaults.

F2C2's battle command interface enhances your planning and decision-making skills by giving you automated planning tools, real-time situational awareness, ISR and fire support planning tools, and more.<sup>68</sup>

## C. Battle Command Review

There is another vital component to the training and learning required for HP CLTs, particularly nurturing those SKA associated with mastering the art of command. That component molds the proven training value of the AAR to support leader and leader team preparation in the art of command. For this, a BCR is suggested as a modular addition to the existing AAR process. The learning focus is the art of command with particular emphasis on developing intuitive skills in decision-making and supporting intensive CLT collaboration that generates shared SKA.

The BCR stands out because it capitalizes directly on the highly accepted AAR process of the CTC model. It stimulates continuing review of how the CLT could improve individual leader and leader team performance and how both individuals and teams could better use the tools BCKS provides. It also stimulates individual and team introspection about how to improve their performance, and it contributes to accelerating the process of changing data to information to shared knowledge to shared actionable understanding—a hallmark of HP CLTs. It should stimulate development of intuitive decision-making skills in individuals and leader teams and lead them to reflect on how to improve the convergence of the SKA of team leadership—shared trust, shared vision, shared competence, and shared confidence.

BCR procedures are comparable to the AAR procedures in Training Circular 25-20 "A Leader's Guide to After Action Reviews." However, the action that occurs and results in an AAR is now treated as a decision exercise (eTDG) to develop individual and team decision-making skills.

Since intuitive decision skills are being developed, several new twists are added to the traditional AAR process:<sup>69</sup>

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68 BCKS LOGNet Announcement, July 11, 2006 [www.us.army.mil](http://www.us.army.mil).

- Explain both learning purpose and learning exercise methodology. Explain what you are trying to do and why you took the steps you did. Emphasize the cues and patterns you noticed as the exercise played out.
- Discuss what might have gone wrong. How you might notice early cues and patterns of those problems.
- Discuss consequences of mistakes made. How could they have been reduced? How might greater shared trust, shared vision, shared competence or shared confidence have influenced the outcome? What if knowledge or understanding had been better shared?
- Explore alternative actions that might have been taken. What cues and patterns would you have looked for to signal success or failure?
- Describe the cues, patterns and expected actions (action scripts) you, the coach, use to judge when procedures are not working.

The primary focus of a BCR should be the various CLTs. However, additional foci might consist of one or more of each of the BCKS components—SPFs, KNs, and ATs that could be grouped as followed:

- **CLTs:** For BCRs at company echelon and above, address the chain of command (three echelons, four echelons if possible), chain of functional support, and chain of coordination. Discuss the SKA of teamwork, team decision-making and team leadership (shared vision, shared trust, shared competence, shared confidence).
- **SPFs:** Address one or more SPFs in which several leaders in the BCR might participate. Discuss how the SPF supported, what could have been more helpful, and how to improve SPF support.
- **KNs:** Address one or more KNs in which several leaders in the BCR might participate. Ensure the KN from the functional area of the unit is selected. Discuss how the KN supported, what could have been more helpful, how to improve KN support, and “best practices” of others known by the KN point of contact.
- **ATs:** Address one or more from each echelon of leaders present for the BCR. Ensure the AT most important to the senior leader present is included. Discuss how they supported, what could have been more helpful, and how to improve AT support.

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69 This list draws heavily on Gary Klein’s *Intuition at Work*, p. 220.

Note that MOP/MOE reflecting the level of vertical or horizontal collaboration that generates shared SKA can be inserted in each example above.

The BCR appears applicable to ALL, LDX and LTX and directly supportive of assessment measures of intensive peer and hierarchical collaboration that generates shared SKA and shared knowledge and actionable shared understanding that could be embedded.

ALL, LDXs, LTXs, and the AAR-BCR process are essential learning and teaching catalysts to stimulate the intensive peer and hierarchical collaboration process. In order to speed up and increase the probability of timely transition to HP CLT, the design of the exercise itself needs to be considered.

The initial focus of the BCR has been on developing intuitive leader and leader team decision-making skills within the Army. DoD Training Transformation envisages a future training environment that will develop individuals and organizations that intuitively think “joint.” The BCR seems fully adaptable to JIIM organizations and various COEs.

## D. Evolving eTDGs

The single most important learning vehicle for generating HP CLT seems likely to be decision exercises, because they can be focused directly on the development of team leadership.<sup>70</sup> There are two broad categories of eTDG depending on the size, characteristics, and requirements of the leader learning audience:

1. Deliberate eTDG can be prepared for use in LDX and LTX with large groups of relatively inexperienced leaders. An excellent example is the SCP preparing commanders for the next higher echelon of command, either grouped or virtual, using “Duffer’s Drift.” However, the current application focuses on the development of individual leaders (LDX) not the preparation

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<sup>70</sup> Capable CLTs must possess the SKA associated with excellent teamwork, team decision-making, and team leadership. Based on personal experience and discussion with highly experienced combat commanders, significant improvement in the SKA of team leadership is the critical path to high performing CLT. Therefore, the most valuable decision exercises are those that improve team leadership and draw on current “best practice” now represented in the Army by eTDG. This should be confirmed by additional research.

of leader teams (LTX).<sup>71</sup> The leader's prior experience, which may be considerable, is routinely at a less complex lower echelon, his/her prior command.

2. Hasty eTDGs can also be useful learning aids for the experienced CLT in combat, helping synchronize responses to unexpected opportunities or challenges. The eTDG can rapidly refocus a highly effective CLT or be used to reestablish the SKA of team leadership after CLT turnover. In this context, a quick "rock drill" rehearsal, expertly orchestrated by the commander, can be a superb eTDG for the experienced CLT. This aspect was demonstrated in the 1-41 Mech example.

TRADOC normally designs and provides deliberate eTDGs to accomplish specific learning objectives.<sup>72</sup> For individual leader preparation, the desired SKA are those prescribed in FM 6-22, *Army Leadership: Competent, Confident, and Agile*. For leader team use, eTDGs should address improved teamwork and team decision-making, but primary emphasis should be on developing the SKA of team leadership. To accomplish this, it would seem highly desirable that eTDG support the ALL design objectives and should be richly detailed to support local "what ifs" by the learning audience. The detail should also support the BCR requirements and have built-in tools for rapid local assessment that can draw upon by CLTs, SPFs, KNs or ATs coming together as teams. The best current example is Duffer's Drift (Appendix H) used as an LDX. Unfortunately, it depends on constructive simulation (JANUS) and is oriented to mounted forces. Variations will be required that are dismounted (infantry-based) and that address stability, security, transition, and reconstruction operations with highly flexible, distributed synthetic learning environments easily molded to ALL-like requirements.<sup>73</sup>

A second important aspect of the deliberate eTDG is that by its nature—a combat vignette normally rich in detail—it provides common context (data and information) for a team of leaders to draw upon to develop team leadership SKA. It is this aspect of generating shared knowledge and actionable shared understanding that appears to be most useful in developing leader teams and supporting LTXs. The de-

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71 This eTDG was introduced by Klein Associates for the USMC and then extended by ARI supporting highly innovative SCP leadership.

72 A timely example of TRADOC tactical learning in an eTDG context applied to Future Combat Systems was F2C2, supporting leaders learning intended FCS capabilities in 2015.

73 This is easier said than done. Semi-automated Forces algorithms embed the ultimate in detailed command—science of control—not variations of volatility, ambiguity, uncertainty and complexity—art of command. Excellent development is ongoing at the National Simulation Center (NSC), Ft. Leavenworth, Kansas.

liberate eTDG needs sufficient detail to generate the proper “minds eye” that in turn creates the appropriate mental models supporting mission command, decision-making, and development of team leadership SKA.

Hasty eTDGs are decentralized in design and execution, and are typically quick response vignettes or snapshots captured from actual combat operations and tailored to specific chain of command learning requirements. They can be highly flexible in drawing on past activities within the organization and can be as simple as a “what then” question added to a discussion from an earlier rock drill which becomes a unit-unique, quick response vignette for a BCR-type discussion.

The hasty eTDG is short and to the point, often 10–15 minutes long when used in combat operations. The focus in preparing for a hasty eTDG has to be thinking through the right questions and issues to stimulate better team leadership within the combat unit rather than producing a rich scenario.

Today, most combat, combat support, and combat service support brigade and battalion commanders understand eTDGs because they have been used extensively in the SCP Battle Command Development Course (BCDC), in Duffer’s Drift iterations and the Commander’s Reaction Course. However, use to date has been primarily for LDXs (individual leaders, not leader team). In all cases, the SCP eTDGs provide an opportunity for leaders to translate data and information to knowledge and understanding in an effective learning environment. These eTDGs seem absolutely appropriate for the Leader Team Development ToolKit of Block Two BCKS. They are a necessary precedent, but not sufficient until they are adjusted to prepare the SKA of leader teams by stimulating intensive collaboration that generates shared knowledge and shared understanding.

The power of eTDG is such that, when added to the CTC learning model, it could provide important learning support to units on the Road to Deployment envisaged in ARFORGEN. I queried over 80 serving officer and NCO OCs at the National Training Center (Ft. Irwin, California), the Joint Readiness Training Center (Ft. Polk, Louisiana), and the Combat Maneuver Training Center (Hohenfels, Germany) in June and July 2004. A summary of the issue and a summary of OC comments (in italics) with respect to preparation for right-seat rides follows.

“Excellent discussions how BCKS might support pre- and post-MRXs across OIF/OEF rotations. Consensus: share JRTC-based eTDG across OIF/OEF rotations with coaching by OCs. If possible, put eTDG (vi-

gnettes) on SPF such as Battalioncommand.army.mil. CMTc accepted, no change. There was extensive discussion of various ways for OCs to sponsor SPFs between old and new units with occasional OC interventions to stimulate learning. Substantial concern was expressed by all groups about the difficulty of getting timely, complete, update data and information for KNs....All agreed that adequate content for eTDG (vignettes) is generated and archived in MRX rotations to support leader and leader team preparation as well as transition "downrange" [to combat operations]. A substantial problem today is maintaining OC currency in changing TTP "downrange" [in combat] so the OCs are effective trainers during MRXs. Several OCs suggested that SPFs established before and during MRXs could be sustained during deployment with leaders from replacement units added as designated."<sup>74</sup>

eTDGs seem absolutely supportive of HP CLT preparation and the development of each of the other components of BCKS—SPFs, KNs and ATs. They appear to be a valuable learning support tool for immediate application to structure individual or team learning in Right-seat Rides. ETDGs could also be designed to provide mechanisms for evaluating which scenarios or vignettes are well adapted to building team leadership and which may lead to erroneous actions—wholly apart from what BCRs can be designed to support.

eTDGs can also be categorized by their role in doctrine and TTP development. eTDGs could replicate new and perhaps unanticipated conditions emerging on the battlefield. They could support development of TTP "best responses." They could be deliberately comparable to task, condition, standard requirements of combat, but kept sufficiently general—therefore unclassified—to permit broad use. Alternatively, eTDG could be classified because they reflect actual anticipated combat operations or are intended for use in combat development or materiel development. These latter characteristics should enhance eTDG value for FCS support in BCKS.

eTDGs appear fully adaptable to training and learning requirements supportive of ALL, LDX/LTX and BCR. They also appear to be "a way" to incorporate participatory media into the training and learning processes. A widely known technique of participatory media is use of avatars.<sup>75</sup> Imagine a CLT composed of Joint Fires leaders who are scheduled to deploy together but whose units are located across the United States. For fires planning or fires execution training, the leaders, represented by their avatars, could meet on virtual digital National Training Center (NTC) terrain inside a

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<sup>74</sup> See Appendix L.

<sup>75</sup> Webster: "a manifestation or embodiment." You act as you wish to represent yourself in a virtual world interacting with other humans as they wish to represent themselves.



virtual TOC provided incidental to the Close Combat Tactical Trainer (CCTT). This developing team of leaders—actually their avatars interacting virtually as directed by their actual humans—could train to standard on instructional situational eTDG developed by the Joint Fires Proponent in LTX and modified “on line” for a particular COE by the senior Joint Fires leader in the deploying Corps, Division or BCT. As appropriate, an AAR or BCR of the LTX could be conducted by the avatar of the senior Joint Fires leader who is already deployed. In effect, this could become a Right-seat Ride of Joint Fires leaders conducted through their avatars. The avatars could stimulate the intensive collaboration that generates the shared SKA of team leadership essential to high performance. Once eTDG are supported by participatory media that is enabled by tools enabled by AKO and BCKS, the physical location of the leaders preparing to become a HP CLT becomes irrelevant.

Innovative use of participatory media as described above may contribute to a breakthrough in developing team leadership for JIIM CLTs where the local culture of each of the CLT members accepts the “reality” of the participatory media.



## VI. Applications Institutionalizing HP CLT Development

Confirmation of HP CLT merits rests in their contributions to important Army programs. Can they be generated and then sustained routinely? Assuming they can, how much of a difference can they make?

There are four major areas where HP CLTs could provide important support: (1) ARFORGEN Road to Deployment, (2) FCS, 3) integration of WMA/BMA domains, and (4) JIIM Stability Operations. One way HP CLTs could support each area is suggested here.

### A. ARFORGEN Road to Deployment

The ARFORGEN Road to Deployment (Figure 1) is a sophisticated, intensive unit deployment preparation and execution, training and learning program for both active and reserve component units.<sup>76</sup> It is an important innovation in Army training that is fully responsive to the demands of the GWOT, and acknowledges the current power of KM. It is an emerging good news story of accelerated implementation of both IT and KM potential. BCKS is currently seen as an “over the shoulder” capability throughout the ARFORGEN cycle and is implemented also as an enabler of both virtual and actual right-seat/left-seat rides. Vertical and horizontal team building is envisaged across various leader teams and units preparing to deploy. KM/BCKS is clearly integral to the ARFORGEN Road to Deployment.

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<sup>76</sup> Road to Deployment—Div.ppt, CAC-T, Ft. Leavenworth, Kansas, Oct 10, 2006.

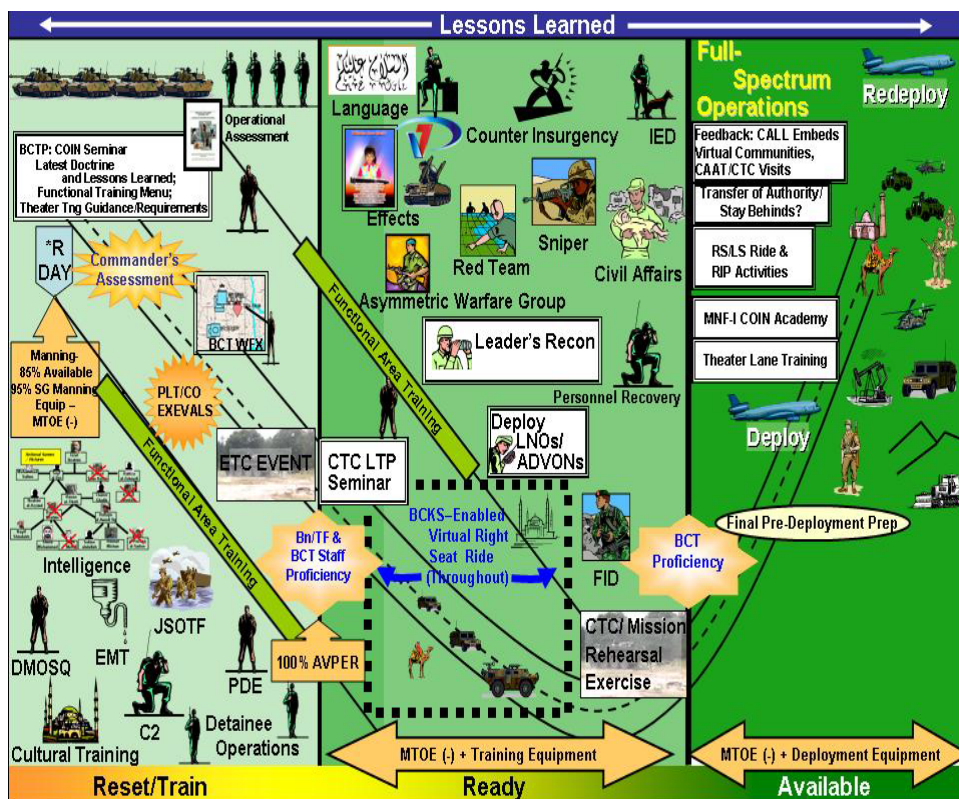


Figure 1. ARFORGEN Road to Deployment

These KM applications appear fully matched by effective use of IT assets. The Combined Arms Center Road to Deployment classified website is an excellent example.<sup>77</sup>

As indicated by the arrows in Figure 2, left to right, there are explanatory diagrams of the broad ARFORGEN conceptual framework linking various subordinate programs; training programs including Training Support Packages from various CTC-based sources; data and information links to secure AKO (AKO-S) and joint organizations; and guidance provided by the training requirements established by U.S. Joint Forces Command, U.S. Army Forces Command and the various Combatant Command headquarters.

<sup>77</sup> Road to Deployment (RTD) for Commanders (Unclassified) “one-stop shop’ for commanders deploying to OIF to start their deployment preparation.” RTD QFR Briefing.ppt CAC-T, Ft. Leavenworth, Kansas, Oct 10, 2006, <http://rtd.leavenworth.army.smil.mil>.



**Figure 2. CLT Preparation Support for the Road to Deployment**

The ARFORGEN Road to Deployment today is a solid start in capitalizing on Army IT and KM implementation. It clearly foresees extensive use of KM/BCKS, but there are opportunities for more intensive of tools (ALL, LDX/LTX, BCR, and eTDG) to generate HP CLTs—particularly for JIIM organizations—than appear in the emerging program. Teams of leaders, increasingly JIIM, now dominate GWOT performance. However, of equal and perhaps greater importance for evolutionary development, senior leadership clearly understands the potential of KM/BCKS to generate HP JIIM CLTs. As commented by CG, CAC: “I agree strongly that the COE clearly underscores the need for HP CLTs, particularly during counterinsurgency (COIN) operations and as part of a JIIM setting.”<sup>78</sup> “BCTP/ U.S. Joint Forces Command MRXs include seminars with large elements of the JIIM team present and then culminate in the conduct of two weeks of MRXs, again including the team. That provides wonderful team building...virtual communities established by BCKS help build teams in functional areas (counter IED, COIN, company commanders, NCOs....”<sup>79</sup>

There may be even more support for ARFORGEN than is reflected in the current Road to Deployment model. KM/BCKS opportunities abound for intensified

<sup>78</sup> Petraeus, David, LTG, email to author, Aug 2, 2006.

<sup>79</sup> Petraeus, David, LTG, email to author, Oct 11, 2006.

training and learning throughout the unit lifecycle represented. SPFs (Company-command.mil, etc.) stimulate timely, tactically applicable generation of knowledge from data and information. Various KNs such as MarneNet and IronhorseNet proliferate in BCTs routinely.

Many forums will co-exist in typical BCT units on the Road to Deployment. The current Road to Deployment correctly focuses on one BCT, but there are Active Component and Reserve Component BCTs in ARFORGEN at the same stage of development that are likely not joined in a shared task organization subordinate to a common Corps or Division. At the initiation of the Road to Deployment on Reset Day, there are other BCTs ahead in the lifecycle, some training and preparing for deployment and some already deployed, but all are available to share “best practices” and to help or be helped. Similar potential should be present for the deployment COE with mission-oriented KN across warfighting domains, perhaps supported by Warrior Knowledge Base and Center for Army Lessons Learned (CALL) data mining in objective areas. There seem to be many opportunities for interlaced, reinforcing SPFs and KNs sharing valuable lessons learned and experiences much as is portrayed in embryonic form in the 1-41 Mech example.

COIN operations are intensely cross-cultural. Preparation involves learning specific SKA as much as explicit task training. Important SKA for HP CLT (shared trust, shared vision, shared competence and shared confidence) should be developed within Army units and then within JIIM organizations. Structuring training to develop LTXs that stimulate intensive collaboration that generates the shared SKA of team leadership could be exported through BCKS for units on the Road to Deployment and introduced in COIN seminars. Ways to accomplish this might include:

- Focusing on mission essential competency-based learning as well as mission essential task training
- Quarterly Training Briefings evolving into Quarterly Training/Learning Briefings
- Developing LDX, LTX, eTDG Learning Support Packages to complement current Training Support Packages
- Combined Arms Training Strategy becoming Combined Arms Training/Learning Strategy
- AARs including follow-on BCRs

Current training practice provides an understood framework for institutionalizing a new stability operations learning requirement.<sup>80</sup> KM/BCKS could provide significant support to generate local learning exercises such as Duffer's Drift. It could draw on participatory media to stimulate intensive collaboration that generates shared SKA to support HP CLTs conducting peer or hierarchical learning in units. AKO/BCKS could provide support to reinforce distance learning (DL) programs through extensive grouped or virtual 360-degree mentoring.

As a first step, the training/learning model reflected in the Road to Deployment could be broadened to include preparing various CLTs. The only teams now prepared specifically are Staff Teams (Battle Staff Operations, Battle Command Brigade Staff Exercise/MRX or Maneuver Combat Training Center/Expeditionary Training Center).<sup>81</sup> The training/learning domains could become: (1) individual, team, and collective training; and (2) institution, self-development, and unit. Such a model encourages individual and team training/learning early in the Road to Deployment. The model could be applied across task training and SKA learning, and be framed by FM 7-0.

The second step could be CTCs, as Schools of Practice, serving as the collective and team task integrators working with BCT Centers of Excellence, such as the Stryker BCT Center of Excellence at Fort Lewis, Washington, to draw on training and learning tools provided through Army KM/BCKS. This would provide simultaneous multi-echelon, multi-function training and learning throughout the BCT life-cycle rather than sequential, collective, unit, and gate-based training as is pronounced in the current Road to Deployment.

Key leaders in the 1-41 Mech example (Appendix E and F) belonged to multiple SPFs and drew from each SPF as necessary to acquire knowledge. Such forums could be encouraged by echelon and across functions by the various proponents and units across Active Component and Reserve Component ARFORGEN. Embryonic today with Cavalry Network, IronhorseNet, Fires Net, LogNet or NCO.net, each leader and leader team could be linked continuously with deployed peers as individuals and as members of peer teams. If deployed, they could occasionally mentor those

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80 Mandated in DoD Directive 3000.05, Subject: Military Support for Stability, Security, Transition, and Reconstruction (SSTR) Operations, Nov 28, 2005.

81 ARFORGEN 101 Revised.ppt, VGT 49 and 50, Oct 10, 2006.

following in school or in the Road to Deployment just as they may have been mentored by their deployed predecessors.

Such forums among and between likely deploying task organizations during the Road to Deployment could support the intensive collaboration that generates shared team leadership SKA to prepare CLTs across the Army. As units are declared ready, highly mission-oriented, functional KNs across task organizations could be added and include currently deployed subject matter experts (SMEs). These forums could be further enhanced if DoS, USAID, SOF, DEA, FBI, CIA, Treasury Department, and Agriculture Department personnel are part of the SPFs, KNs, and CLTs.

Such suggested collaboration does not yet appear in the Road to Deployment. At present it appears to contain excellent but dated Battle Command Staff Training as structured for the Force XXI Training Program in the early 1990s. Many more advanced training and learning best practices and tools are now emerging through the capabilities of AKO/BCKS, and should be incorporated.

The training and learning happening now at the CTCs appears to be effective. Intelligence-driven operations incorporate computer modeling of an insurgency to drive stability operations training and learning. It is a remarkable advance. There is significant potential to generate a highly effective virtual simulation of stability operations equivalent to the Semi-Automated Forces (SAF) that were invented to stimulate CCTT training for mid-intensity operations.

Put a high resolution, instrumented Tiefert City (located at the NTC) and a Shugart-Gordon (city located at the Joint Readiness Training Center (JRTC)) into the CCTT database and add avatars. This could generate highly effective individual and team-based stability operations learning exercises at the NTC for adaptation in local Battle Simulation Centers and Expeditionary Training Centers. Drawing on current NTC operations, intelligence-driven operations, negotiations, media training, evidence collection and exploitation, and fiscal operations could enhance effective learning at each distributed Battle Simulation Center with CCTT infrastructure. With avatars, these training and learning exercises could also be available for Reserve Component individual leaders and CLTs across the Army.

For example, current CTC Cultural Awareness and Negotiations Training includes:

- "...Platoon Leaders to Brigade Commander offered a bilateral negotiations situational training exercise lane:



- enter into a negotiation or engagement with a local leader to resolve a specific issue.
- local leader is role-played by a foreign language speaker, as are the translators and others in room
- negotiation/engagement video recorded for AAR; unit leader receives direct feedback from OC as they review the video playback ....”<sup>82</sup>

This does not have to be limited to on-site CTC training/learning. Using the potential of Internet-based AKO/BCKS, learning and training stimuli from NTC, JRTC and BCTP could be exported to the Commander’s Portals—CPoF/BCKS of the future.

The above capabilities should facilitate turning the current, structured, sequential training in the Road to Deployment into a simultaneous, multi-task training and competency-based learning experience. It could extend from initial BCT lifecycle manning forward for individuals, teams of leaders, and units. Grouped or virtual leader and leader team training/learning could happen at every stage. Peer and hierarchical teams would become proficient in the practices necessary to generate and sustain HP CLTs.

## B. Future Combat Systems Experimental BCT

FCS is the Army’s premier land combat development effort—the centerpiece of the Army Plan to provide relevant and ready landpower. The Experimental BCT at Ft. Bliss, Texas will be the organization charged with integrating important new manned and robotic capabilities into FCS as they are introduced (Figure 3).

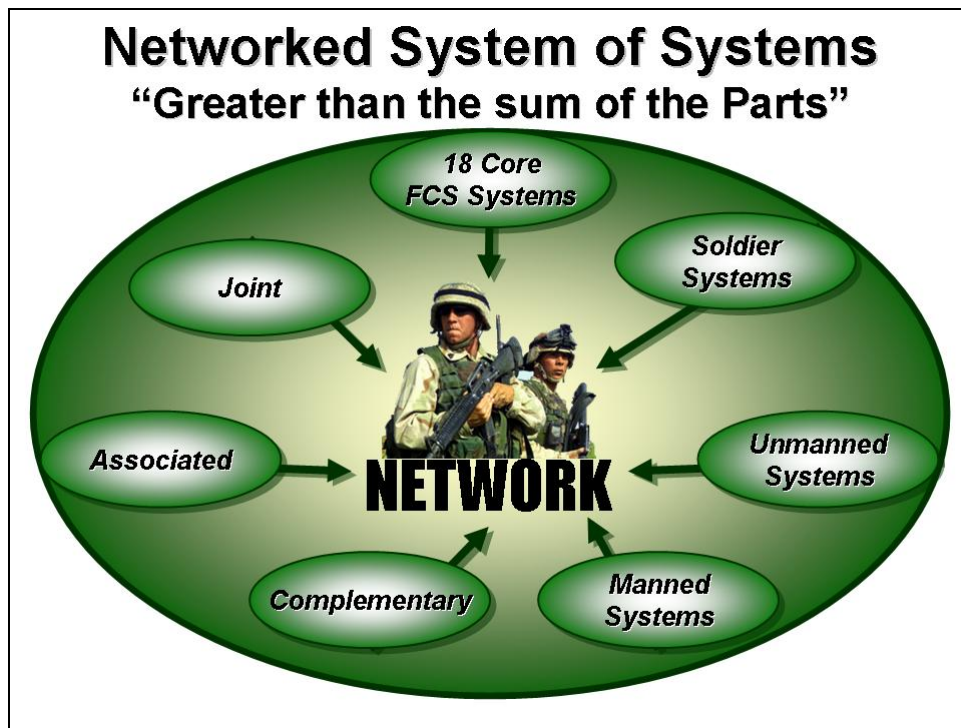
The IT challenges of creating a networked system-of-systems are formidable. Significant effort is directed at developing Warrior-Machine Interfaces designed to significantly increase leader situational awareness—“getting the right information to the right person at the right time—in a form they can rapidly use and assimilate.”<sup>83</sup> However, the focus is essentially on individual leaders. Collaboration clearly requires IT support as well, but forming peer and hierarchical teams of leaders through intensive collaboration that generates shared SKA is not currently part of the development vision. While there are clear development issues associated with HP CLTs, a

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<sup>82</sup> CAC-T Overview Briefing, VGT6, Ft. Leavenworth, Kansas, October 11, 2006.

<sup>83</sup> FCS Warrior Machine Interface (WMI) Info Brief VGT 5, Unit of Action Mounted Battle Lab May 18, 2005.

much broader perspective of KM exploiting an IT system-of-systems is appropriate. For example, what is an HP CLT when one or more members of the distributed team are robotic? That just opens the door. Consider the KM combinations and war-fighting effects involved in the 1-41 Mech scenario (Appendices E and F). Look at the ARFORGEN Road to Deployment examples above and then apply them to a fully networked BCT with the ability to form and reform ATs globally, faster and better.



**Figure 3. Networked System of Systems**

The Experimental BCT can draw on KM/BCKS tools not only to develop professional forums and KNs across FCS developmental functions, but also to draw current best practices from various Infantry BCTs, Heavy BCTs, and SBCTs. There is likely an intensive IT/KM-based Experimental BCT Road to Development of HP CLTs comparable to the ARFORGEN Road to Deployment but consisting of near continuous multi-echelon, multi-function LTXs.

## C. HP CLT Support of WMA/BMA Domains

So far, the KM/BCKS focus has been on the warfighting Army. This is the responsibility of the BCKS proponent and developer, CAC, TRADOC. This is necessary and appropriate, but Army KM should also help support business transformation. The scope there is far broader as it extends across the full Army Enterprise.

KM appears to be directly applicable to at least two focus areas. The first is in extending Situational Awareness: “Enterprise Solutions represent **the vertical and horizontal alignment of people, processes, and technology across organizational and functional boundaries....**”. The second is enabling Continuous Process Improvement: “CPI provides the Army with **a method, tools and techniques for defining the Voice of the Customer**<sup>84</sup>, analyzing requirements, and optimizing processes to align with Army strategic objectives. The Army has selected Lean Six Sigma as the process improvement technique aligning with Voice of the Customer.”<sup>85</sup>

KM potential appears to be directly responsive to these areas, not as much for improving return on investment on business processes, but with IT, for improving effectiveness and efficiency across all domains. KM can generate and sustain HP CLTs—hundreds of grouped and virtual leader teams—through intensive collaboration that generates shared SKA. HP CLT development can be added to the Army CIO/G-6 500 Day Plan (illustrated in Figure 4), Initiative 2.2.2, to reflect specific application objectives in support of each of the Warfighting and Business Mission Area domains as indicated below in italics.<sup>86</sup>

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<sup>84</sup> Voice of the Customer is the term used to describe stated and unstated needs or requirements of the customer.

<sup>85</sup> US Army, Army Game Plan 2006. Encl 12, Business Transformation Governance. Army Business Transformation Knowledge Center, 2006.

<sup>86</sup> US Army, Army CIO/G-6 500 Day Plan, Nov 6, 2006. The initiative is also the same as Goal 2 of the Army Knowledge Management Strategic Plan, second edition, HQDA CIO/G-6, June 8, 2003.



**Figure 4. Army Knowledge Management Initiatives** <sup>87</sup>

Initiative 2.2.2. Integrate Knowledge Management (KM) Concepts and Best Practices to Promote a Knowledge-Based Force.<sup>88</sup> The current description of the initiative could be expanded as shown in italics:

This initiative supports the infusion of current and emerging KM capabilities into Army processes and the development of a knowledge-based workforce. *It supports collaboration and sharing of best practices to generate knowledge and understanding among leaders and teams of leaders in the Army portion of the Business, Warfighter, and Enterprise Information Environment Mission Areas.*

Initiative 2.2.2 currently has eight programs/projects that are necessary but incomplete because they do not directly relate KM to the Warfighting Mission Area or the Business Mission Area domains.

- Deployment of Collaboration Capabilities
- Enterprise Content Management

<sup>87</sup> Winkler, Gary, "Enabling Battle Command, Army Knowledge Management Initiatives" briefing, General Officer Workshop, US Army, HQDA, Feb 25, 2006.

<sup>88</sup> US Army, Army CIO/G-6 500 Day Plan, Nov 6, 2006.

- Support Net-Centric Operational Environment KM Functional Solutions Analysis
- Net-Centric Enterprise Services
- Integrate KM in to Battle Command
- KM for IT Portfolio Governance
- Community-driven Knowledge Management
- Support KM tracks of LandWarNet Conference

Figure 5 illustrates the 18 domains for the BMA and the WMA.

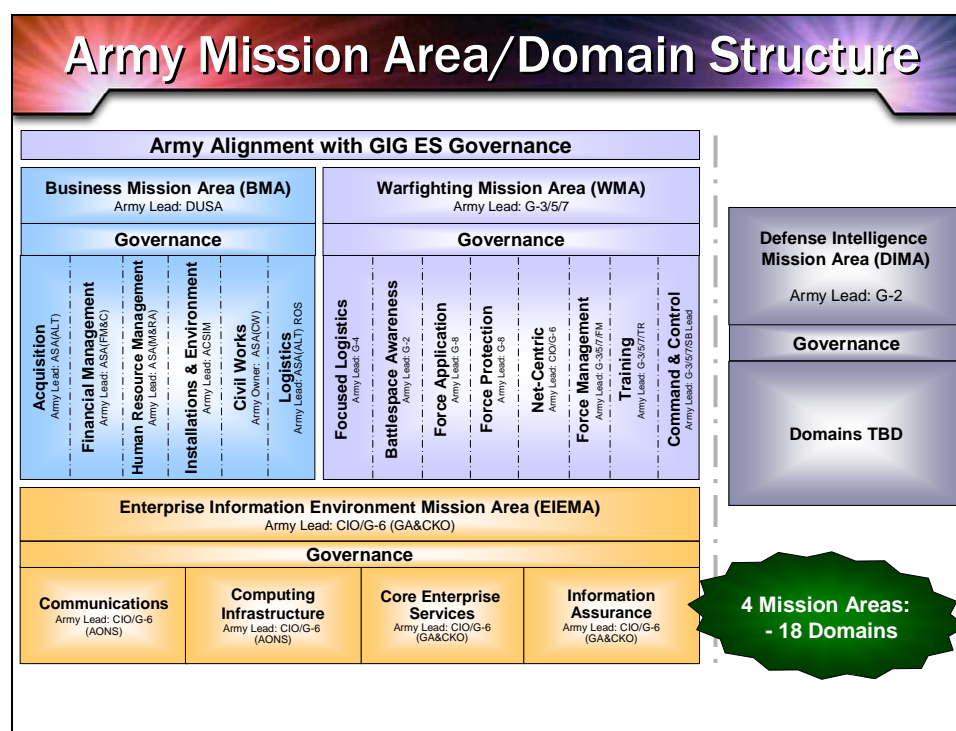


Figure 5. Army Mission Area/Domain Structure<sup>89</sup>

Add six sub-areas for each of the eight domains in the Warfighting Mission Area (drawn from current CAC BCKS objectives):

- *Enhance Professional Education—individual, team, and collective preparation and performance in institution, self-development and unit/organization*
- *Foster Leader Development—individual, team, and collective preparation and performance in institution, self-development and unit/organization*

<sup>89</sup> Winkler, 2006.

- *Support Doctrine Development—individual and team preparation and performance in institution, self-development and unit/organization*
- *Support Lessons Learned—individual, team, and collective preparation and performance in institution, self-development and unit/organization*
- *Support Training—individual, team, and collective preparation and performance in institution, self-development and unit/organization*
- *Enhance Battle Command—individual, team, and collective preparation and performance in institution, self-development and unit/organization*

Add seven sub-areas for each of the six domains in the Business Mission Area. In each case, KM supports both individuals and teams efforts in addressing the sub-areas.

- *Support the Warfighter—bottom up.*
- *Support effective and efficient allocation of resources within the business area, across business areas and in support of warfighting mission domains.*
- *Support collaboration across relevant Army, JIIM, commercial and academic competencies provided within each domain and, in collaboration across domains and to the warfighting mission area.*
- *Reflect national state of the art best practices in knowledge generation.*
- *Look down, support down, and collaborate across mission areas to draw direction and development from individual, team, and collective contemporary experience.*
- *Support effective leader team building within the mission area and leader teams sharing data, information, knowledge and understanding across mission areas*
- *Support career-long professional development within the mission area with continuing individual and team education and training supported by KM-enabled mentoring.*

Note the consistent emphasis on intensive collaboration within and between domains of all Mission Areas. That emphasis, in addition to the various IT and KM policies and tools discussed above, should bring HP CLTs firmly into Army business transformation. There is an effective, expanding BCKS model to draw from.

## D. HP CLT Support of JIIM Stability Operations

“Stability operations emerged in 2005 as a mission area for the Department of Defense, the US Government, America’s multinational partners and international and non-governmental organizations. For the US Army and the other US military services, it became a core mission, to be given priority comparable to combat opera-

tions. This is a very significant paradigm shift.”<sup>90</sup> Army operations now consist of offensive, defensive and stability operations. Stability Operations “...support US Government plans for stabilization, security, reconstruction and transition operations, which lead to sustainable peace while advancing US interests.”<sup>91</sup>

The scope of DoD direction is breathtaking:

4.3. Many stability operations tasks are best performed by indigenous, foreign, or US civilian professionals. Nonetheless, US military forces shall be prepared to perform all tasks necessary to establish or maintain order when civilians cannot do so. Successfully performing such tasks can help secure a lasting peace and facilitate the timely withdrawal of US and foreign forces.

Stability operations tasks include helping:

4.3.1. Rebuild indigenous institutions including various types of security forces, correctional facilities, and judicial systems necessary to secure and stabilize the environment;

4.3.2. Revive or build the private sector, including encouraging citizen-driven, bottom-up economic activity and constructing necessary infrastructure; and

4.3.3. Develop representative governmental institutions.”<sup>92</sup>

Put this extraordinary expansion of America’s Army responsibilities in the context of the importance and magnitude of the Long War. In October 2006, a commentator provided perspective with his observation on the deteriorating and fluid situation in Iraq: “Whether it be the Islamization of the Israeli-Palestinian conflict, the subversion of conservative regimes by salafist movements, or the continuing radicalization of European Muslims, the Long War, as the administration calls it, will be even longer, and more difficult, than anyone might have thought...in what remains a protracted and global conflict with mortal enemies.”<sup>93</sup> KM/BCKS simply must support JIIM operations.

Almost every aspect of the current Army Plan responds to some aspect of stability operations, which are themselves inherently JIIM in nature. The Department

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90 Association of the United States Army, Institute for Land Warfare, “The U.S. Army’s Role in Stability Operations” Torchbearer National Security Report, Oct 2006.

91 US Department of Defense, DoD Directive 3000.05, Subject: Military Support for Stability, Security, Transition, and Reconstruction (SSTR) Operations, Nov 28, 2005, p. 2.

92 US Department of Defense, 2005.

93 Cohen, Eliot A., “Plan B,” *Wall Street Journal*, Oct 20, 2006, p. 12.

of State is the focal point for coordinating US departments and agencies with respect to stability operations.<sup>94</sup> Multiple interagency organizations or task forces appear such as Country Reconstruction and Stabilization Groups, Humanitarian Reconstruction and Stabilization Teams, and USAID Disaster Assistance Response Teams. To support Afghan civil-military stability operations, multiple provincial reconstruction teams have been created with DoD, DoS, USAID, US Department of Agriculture, and Afghanistan government representation. Yet the military constitutes 97% of the Provincial Reconstruction Teams—reconfirming a continuing problem, which is the difficulty in providing competent, motivated personnel from other agencies of the US Government.<sup>95</sup> Under the DoD Stability Operations directive, DoD (largely the US Army) is the default support across the broad range of JIIM operations.

The solid and rapidly expanding KM/BCKS role in supporting the ARFORGEN Road to Deployment has been discussed. SPFs, KNs, and ATs undergird the multi-capability “plug and play” design of BCTs and support brigades. The application of various KM/BCKS tools and enablers to generate HP CLTs in JIIM stability operations is explained in the context of preparing for drug enforcement operations (Appendix K).

These tools and enablers also support the development of the multi-skilled leader, “the Pentathlete” envisaged in the Army Plan. An excellent example of current adaptation of individual leader preparation is the revision of content at the SCP for incoming brigade and battalion commanders:

We are also modifying scenarios used as practical exercises in the course to better represent the operational environments in Iraq/Afghanistan. For example, we have broadened the “staff ride” to Lawrence, KS by making it a “Spheres of Influence” exercise for the students. They meet with city officials to discuss city management, economic and governance issues. The key part of the event tasks the student-commanders to identify the informal power structure and how they would influence Lawrence (Kansas) if it was part of their AOR. At the conclusion of the trip, four student-commanders are selected to conduct a press conference and be interviewed in front of a class of students at the KU Journalism School. In the press conference the student-commanders discuss their role in the SSTR (Stabilization, Security,

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94 National Security Presidential Directive 44, Management of Interagency Efforts Concerning Reconstruction and Stabilization. Dec 7, 2005.

95 Association of the United States Army, Oct 2006.



Transition and Reconstruction) operation completed the day before and answer questions about the exercise.<sup>96</sup>

This really excellent support to JIIM operations and KM/BCKS is fully integrated with the various Directorates at the CAC, Ft. Leavenworth, Kansas, by the Director, BCKS who reports directly to CG, CAC. But this is individual preparation within the Generating Force of America's Army. The DoD Directive mandating stability operations is intensely JIIM. Where is the JIIM preparation for individuals and teams in the military services, much less all of the other USG departments and agencies? After all, joint operations are team operations. An answer is the Joint Knowledge Development and Distribution Capability (JKDDC), though leader teams are not specifically addressed at present.

The vision of DoD's JKDDC is to be the premier provider of relevant, timely, and globally accessible joint knowledge, preparing individuals to support combatant commanders and national security. The Army implementation plan develops a Joint Learning Continuum supportive of lifelong learning "delivering relevant Joint (JIIM) training, at the right time during a Soldier's training and education path."<sup>97</sup>

This is an elegant concept for individual training and learning that clearly benefits both AKO and BCKS. It anticipates distribution of content with a delivery "dashboard" very similar to the Commander's Portal conceptualized for warfighting. "The dash-board provides a 'homeroom' for the warfighter as he builds his knowledge base."<sup>98</sup> The CG, USA Fire Support Center, Ft. Sill, Oklahoma, who is also the Joint Fires Proponent, is to be the lead developer of Army implementation of JKDDC. This is an important extension of Army IT/KM to support important joint training and education. It is also in the process of being extended to intelligence and logistics functional areas.

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96 Harrison, James W., COL, Director SCP, email about ARFORGEN Research Support, Oct 10, 2006. For a relevant SCP comparison, see Appendix G, which is an excellent example of responsive change.

97 TRADOC, "Army Joint Knowledge Development and Distribution (JKDDC)," Initiative Concept Paper, US Army, Apr 10, 2006, p. 1.

98 TRADOC, 2006, p. 5.

JKDDC leaders are reviewing the development of Joint Knowledge On-line (JKO) to deliver BCKS functionality to the larger JIIM community. Indeed, it is anticipated that initial development of JKO is to be done by Army G6/BCKS. As commendable as these efforts clearly are, the program addresses individuals, not teams. Joint tasks are essentially team tasks. DoD Training Transformation addresses only individual preparation and collective training. Planning and executing Joint Fires is inherently the product of the efforts of individuals from different military services and intelligence organizations working as a team. Where are these teams to be developed and sustained, and what capabilities, doctrine, and TTP will they draw on?

Is it time to generate Joint Fires HP CLTs en route to a broader HP CLT JIIM? JKDDC provides an excellent beginning in a functional area well understood across all military services. Subsequent transition to explicitly address stability operations that generate JIIM HP CLTs should be rapid and certain.

Four potential applications for HP CLTs enabled by AKO and BCKS have been explored. Each was selected as an entry program likely to expand significantly. Other programs are certainly applicable and perhaps more important as pacing applications. Yet these four reflect HP CLT application across the breadth of the enterprise that is America's Army with Long War responsibilities. Suggested enablers can bring each application to fruition with growth potential for assessment.

## VII. Conclusions and Recommendations

The central insight in this paper is that AKO and BCKS can enable interactive intensive peer and hierarchical collaborative processes that generate shared SKA to create and sustain HP CLTs with shared knowledge and shared actionable understanding. The “why” and “a way” to establish and sustain intensive collaboration in creating and supporting HP CLTs have been described in detail. Each BCKS major component is influenced by intensive collaboration. However, achieving the intensive collaboration that generates the shared SKA of team leadership is central to realizing the original BCKS Block Three, high performing leaders and CLTs. That directly relates BCKS to the combat effectiveness of America’s Army at war. The payoff will be its successful application to the immediate and serious responsibilities of America’s Army and JIIM organizations during the execution of offensive, defensive, and stability operations in the Long War.

### A. Conclusions

Based on AKO/BCKS success and the power of intensive leader collaboration, it is both desirable and feasible to expect the combination of IT and KM to generate and sustain HP CLT possessing shared knowledge and actionable shared understanding across a globally dispersed force.

Leader team development tools (ALL, LTX, BCR, and expanded eTDG) can be prepared and rapidly institutionalized to support HP CLT formation and sustainment.

To harness HP CLT potential to support the Long War, diverse operational applications, incorporating continuous test and evaluation to improve and accelerate intensive peer and hierarchical collaboration processes, should be supported. Four development paths include support to: (1) ARFORGEN Road to Deployment, (2) FCS-EBCT, (3) Business Transformation WMA/BMA domains; and (4) JIIM Stability Operations.

## B. Recommendations

1. Restate development of HP CLTs as an explicit objective of BCKS development supported by AKO.
2. Create ALL, LTX, BCR and expanded eTDG to support HP CLT development for America's Army and associated JIIM operations.
3. Apply the policies and programs suggested to support HP CLT to:
  - ARFORGEN Road to Deployment
  - FCS-Experimental BCT development
  - Business Transformation WMA/BMA domains
  - JIIM Stability Operations

## Appendix A: Acronyms & Abbreviations

1-41 Mech	1st Battalion, 41st Infantry (Mechanized)
101 AASLT	101st Airborne Division (Air Assault)
18 MP	18th Military Police Brigade
1 AD	1st Armored Division
1 CD	1st Cavalry Division
2 <sup>nd</sup> Bde, 82 <sup>nd</sup> ABN	2nd Brigade, 82nd Airborne Division
3 ID	3rd Infantry Division
AAR	After Action Review
ADLS	Army Digital Learning Strategy
AFV	Armored Fighting Vehicle
AKO	Army Knowledge Online
ALL	Adaptive Leader Learner
ARFORGEN	Army Force Generation
ARI	Army Research Institute
BCDC	Battle Command Development Course
BCKS	Battle Command Knowledge System
BCR	Battle Command Review
BCT	Brigade Combat Team
BCTP	Battle Command Training Program
BFT	Blue Force Tracker
BMA	Business Mission Area
BOS	Battlefield Operating System
CAC	Combined Arms Center
CALL	Center of Army Lessons Learned
CASEVAC	Casualty Evacuation
CCIR	Commanders Critical Information Requirements
CCTT	Close Combat Tactical Trainer
CG	Commanding General
CGSC	Command and General Staff College
CGSOC	Command and General Staff Officer Course
CIO	Chief Information Officer
CLT	Commander Leader Team
CMTC	Combined Maneuver Training Center

COE	Common Operating Environment
COFT	Conduct of Fire Trainer
COIN	Counterinsurgency
CONUS	Continental United States
CPoF	Command Post of the Future
CSM	Command Sergeant Major
CTC	Combat Training Center
DA	Department of the Army
DARPA	Defense Advanced Research Projects Agency
DKM	Defense Knowledge Management
DKO	Defense Knowledge Online
DoD	Department of Defense
eTDG	Electronic Tactical Decision Games
F2C2	Future Force Company Commander
FBCB2	Force XXI Battle Command, Brigade-and-Below
FCS	Future Combat System
FM	Field Manual
FSO	Fire Support Officer
GWOT	Global War on Terror
HP	High Performing
IEW	Intelligence and Electronic Warfare
IT	Information Technology
JFLCC	Joint Force Land Component Command
JIIM	Joint, Interagency, Intergovernmental, Multinational
JKDDC	Joint Knowledge Development and Distribution Capability
JRTC	Joint Readiness Training Center
KIA	Killed in Action
KM	Knowledge Management
KN	Knowledge Net, Knowledge Network
LDX	Leader Development Exercise
LTP	Leader Training Program
LTX	Leader Team Exercise
MDMP	Military Decision-Making Process
METT-TC	Mission, Enemy, Terrain and Weather, Troops—Time Available, Civilian Considerations
MOE	Measure of Effectiveness
MOP	Measure of Performance

MRX	Mission Rehearsal Exercise
NCO	Non-commissioned Officer
NTC	National Training Center
OC	Observer/Controller
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OPSEC	Operational Security
RFI	Request for Information
SCP	School of Command Preparation
SIPRNet	Secure Internet Protocol Router Network
SKA	Skills, Knowledge and Attitudes
SPF	Structured Professional Forum
TCDC	Tactical Commander's Decision Course
TEWT	Tactical Exercise Without Troops
TRADOC	U.S. Army Training and Doctrine Command
TTP	Tactics, Techniques, Procedures
USAIS	United States Army Infantry School
USASMA	United States Army Sergeants Major Academy
VDD	Visualize, Describe, Direct
WKB	Warrior Knowledge Base
WKN	Warrior Knowledge Network
WMA	Warfighter Mission Area
XO	Executive Officer





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## Appendix C: Information Technology and Army Knowledge Online

IT is essentially top-down to insure the uniformity of products and processes of net-centricity across the DoD. By contrast, KM/BCKS is primarily bottom-up, reflecting the contributions of leaders in units and organizations across the Army enterprise eager to improve themselves, and other “passionate professionals” in service to the Nation. There is an inevitable creative tension between top-down IT and bottom-up KM that stimulates and improves each.

KM/BCKS does not stand-alone. In a globally disposed force, BCKS is wholly dependent on the general support IT offers as the communication means providing the data and information that is the raw material of KM used to generate knowledge and actionable understanding. IT support for KM/BCKS is provided by Army Knowledge Online (AKO).

The synergistic relationship between KM/BCKS and IT is reflected in the Army Knowledge Management Strategic Plan, illustrated in Figure C-1.

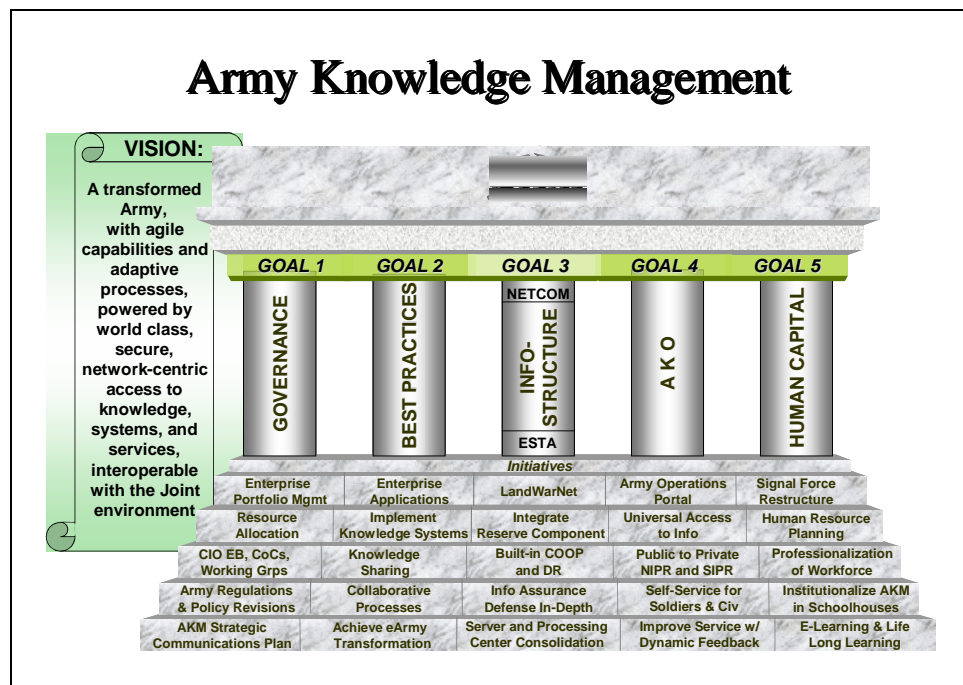
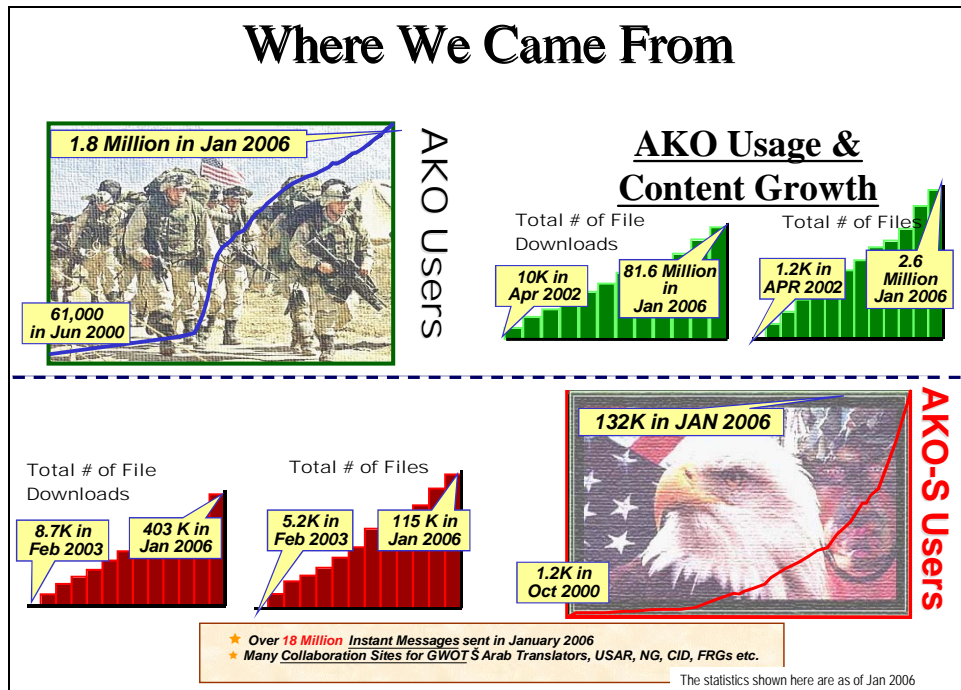


Figure C-1. Army Knowledge Management

KM, with BCKS as the operational program, is Goal 2 of the AKM Program summarized as “Best Practices.”<sup>99</sup> AKO is Goal 4. They are equal and mutually dependent for AKM success.

AKO, started as a “skunk works” project by Gen Maxwell R. Thurman in 1984, and has been extraordinarily successful (Figure C-2).



**Figure C-2. Growth of Army Knowledge Online**

The objective of Goal 4 is to “scale Army Knowledge Online as the Enterprise Portal.”<sup>100</sup> Well-funded as a major Army CIO/G6 program, AKO is being adapted as Defense Knowledge Online (DKO). It seems reasonable to anticipate that the clear merit of AKM will translate to Defense Knowledge Management (DKM) parallel to the fielding of DKO, but this is yet to occur.

As the Army moves to an “Everything over Internet Protocol,” AKO will provide a flexible IT system for AKM across the entire Army in the Warfighting Mission Area and Business Mission Area domains that support Business Transformation and

<sup>99</sup> BCKS had not yet developed, although a predecessor, Warrior Knowledge Net, was emerging.

<sup>100</sup> Winkler, Gary, “Army Knowledge Management Initiatives,” GO Workshop: Enabling Battle Command, Feb 25, 2006.

tactical unit operational requirements. A primary focus of AKO is supporting Battle Command.

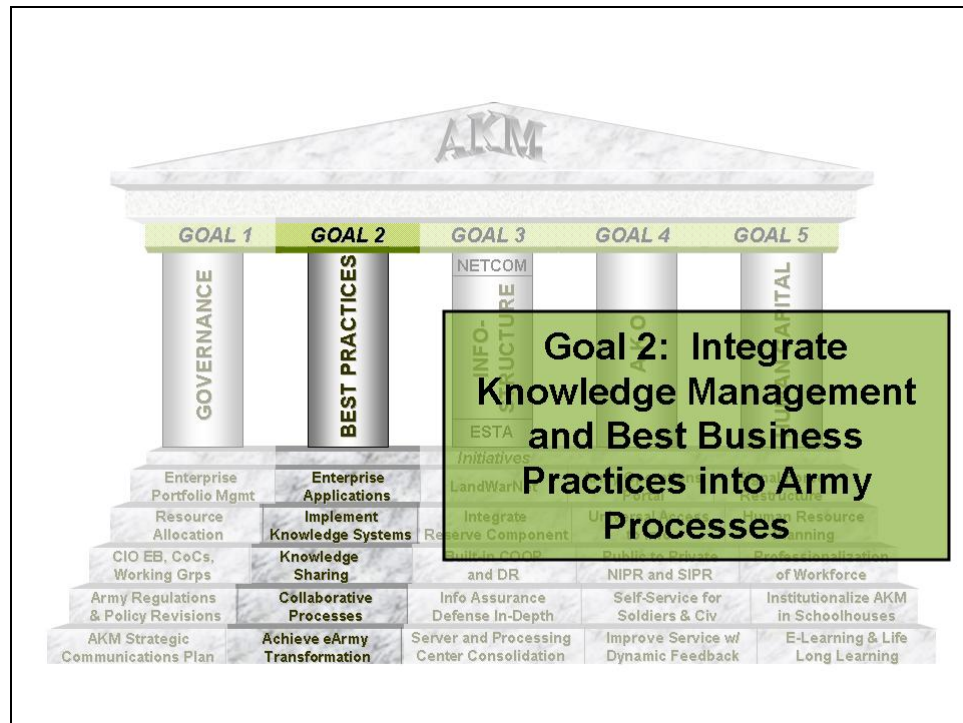
“User friendliness” for the various SPFs, KNs, ATs, and CLTs of BCKS is essential. HQDA CIO/G6 has conducted extensive “Best of Breed” research with users and a methodology has been established to ensure bottom-up support.

In sum, AKO, as it is growing, is increasingly successful at providing critical support to the development of BCKS and it appears to provide the necessary IT capabilities to enable HP CLTs (whether grouped or virtual). BCKS appears to be an essential enabling resource for Army implementation of JIIM stability operations.



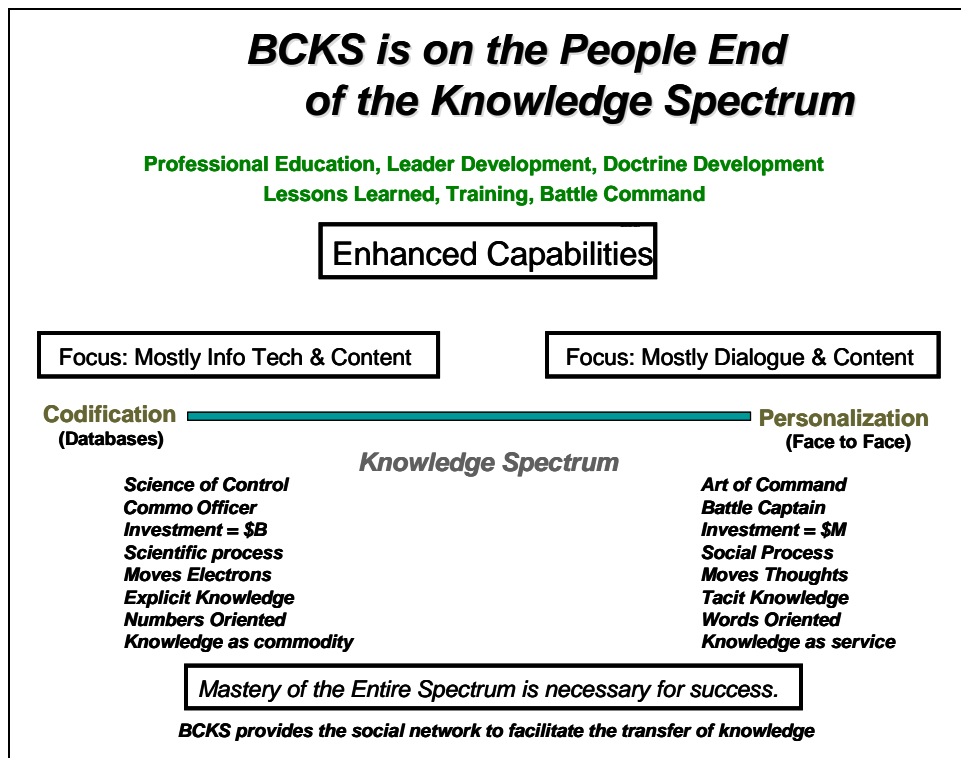
## Appendix D: Battle Command Knowledge System

Figure D-1 illustrates the structure of the AKM Program, highlighting Goal 2, or AKM Best Practices. Currently, the KM support to the AKM Program is BCKS (previously Warrior Knowledge Net).



**Figure D-1. Goal 2 of the Army Knowledge Management Program**

As the KM “companion” to IT/AKO (Goal 4), and described as a system, BCKS is often misinterpreted as an IT system. To correct that, Director BCKS at the Combined Arms Center, Ft. Leavenworth uses the slide in Figure D-2 to illustrate the difference between IT/AKO and KM/BCKS.



**Figure D-2. The IT – KM Spectrum**

The KM focus on social processes is reinforced by CAC’s emphasis on BCKS supporting the Army as a learning organization.<sup>101</sup>

## A. Mission

The mission of BCKS at the TRADOC Combined Arms Center is to support the online generation, application, management, and exploitation of Army knowledge to foster collaboration among Soldiers and units in order to share expertise and experience; facilitate leader development and intuitive decision making; and support the development of organizations and teams.

### 1. Vision

BCKS is the first place Soldiers go to seek knowledge, find answers, collaborate with others, and share what they know—anytime, anywhere. BCKS is the social and digital network of people, collaborative tools, and repositories that supports KM

<sup>101</sup> *BCKS Annex , AKO Capabilities Production Document*, Combined Arms Center, Fort Leavenworth, KS, revised draft, May 8, 2006, pp. 2-4.



throughout the Army. BCKS connects Soldiers to information and people within the greater JIIM knowledge communities. It is a collection of communities encompassing Army units, organizations, Soldiers, and civilians with common interests. They connect to each other to enable secure transfer of timely and relevant knowledge. Using that knowledge helps the Army provide Combatant Commanders with trained and ready forces who fight and win against adaptive adversaries.

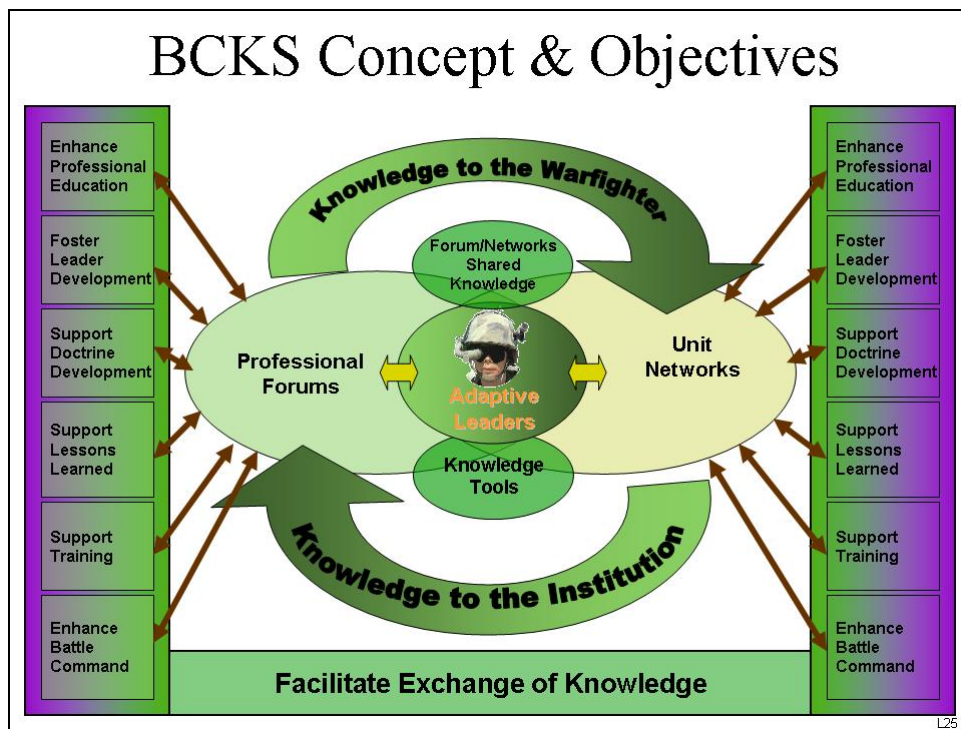
### **Objectives**

The BCKS management team serves as catalyst and leader for fostering the objectives. Implementing BCKS as a collection of operational and institutional knowledge communities creates the conditions that result in the following objectives:

1. **Enhance Professional Education.** The BCKS team oversees the integration of KM practices and expertise to support the establishment of collaborative capabilities across the Operating Force and Generating Force.
2. **Facilitate Exchange of Knowledge.** The BCKS team facilitates the establishment and operation of online professional forums. The BCKS team supports the implementation of secure, standardized knowledge management practices.
3. **Foster Leader Development.** The BCKS team provides collaborative professional forums in order to assist and support the Army's training and education process to develop adaptive leaders and teams of leaders. The BCKS team enables sharing of experience and expertise to help develop intuitive decision-making.
4. **Support Doctrine Development.** The BCKS team enables collaborative discussion of capabilities and supports the online creation and revision of doctrine.
5. **Support Lessons Learned.** The BCKS team provides knowledge management expertise and best practices to assist the Center for Army Lessons Learned as it collects and shares Observations, Insights and Lessons Learned.
6. **Support Training.** The BCKS team supports the collaborative development of relevant online training scenarios based on current combat experiences.
7. **Enhance Battle Command.** The BCKS team supports virtual collaboration to facilitate the timely exchange of Army and JIIM knowledge to en-

hance situational understanding, learning and decision-making at all echelons. The BCKS team assists units in their preparation for deployment by enabling SIPRNET virtual Right-Seat Rides as part of the ARFORGEN Road to Deployment.

This is all is tied together in one summary visual that expresses well the CAC BCKS program.<sup>102</sup> (Figure D-3.)



**Figure D-3. Original BCKS Concepts and Objectives**

Figure D-3 expresses the talent, energies, and focus of CG, CAC during 2003–2006 when BCKS was created. Not surprisingly, BCKS current objectives reflect support to the missions assigned by the Army and TRADOC to CAC, Ft. Leavenworth. Due to the essential social focus of KM, this orientation has been essential and highly beneficial, but has changed considerably since the program began in 2003. Figure D-4 depicts the program, then called the Warrior Knowledge Network (WKN), in June 2003. By October 2003, BCKS appeared and to justify resources, BCKS became three sequential blocks (Figure D-5).

<sup>102</sup> BCKS Workshop Presentation, USAIC, Ft. Benning, Georgia, May 16, 2006.

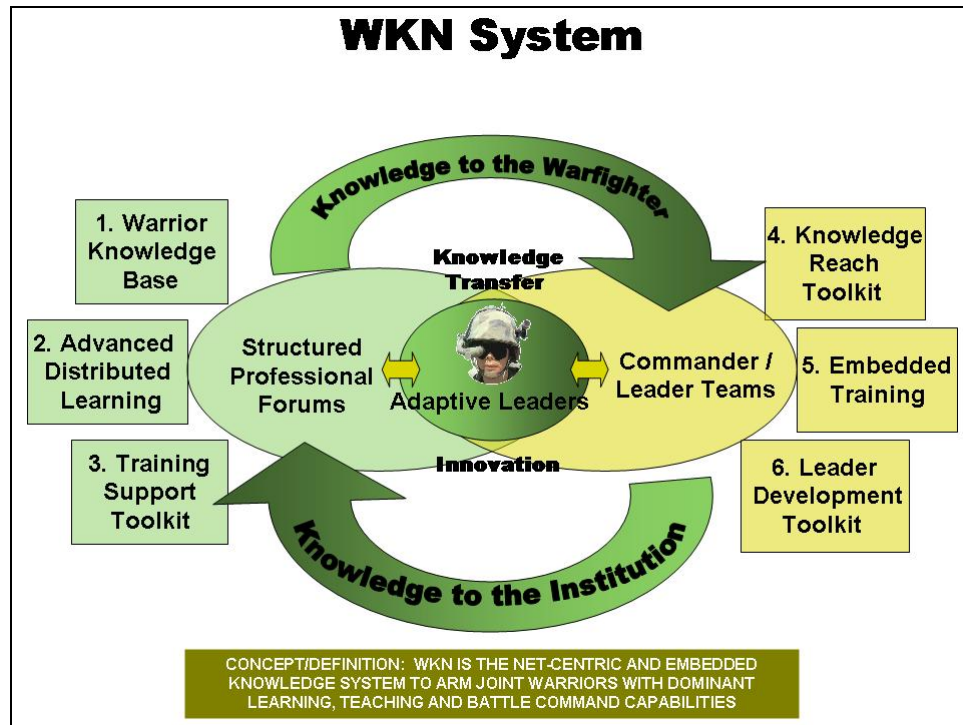


Figure D-4. Warrior Knowledge Network System

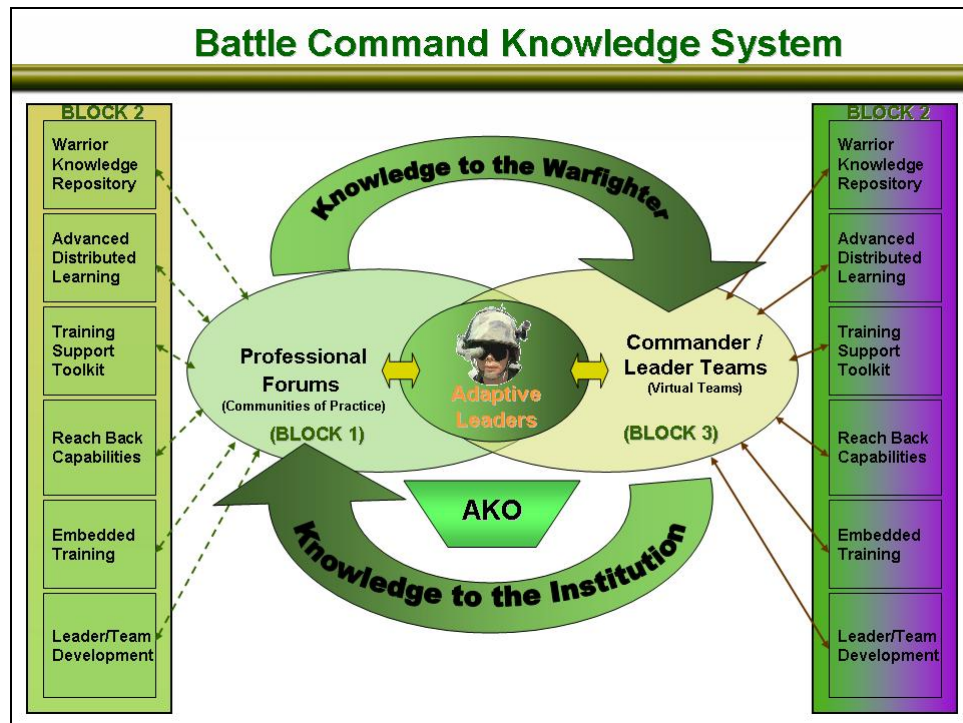


Figure D-5. BCKS – Sequential Development

Block 1 was the development of various Professional Forums—SPFs. Block 2 was development of the various supporting programs such as Warrior Knowledge Base and Commander Leader Development Tools. Block 3 was the development of CLTs.

The major foci—supporting adaptive leaders—have notably changed. Currently, they are Professional Forums and Unit Networks. A recent presentation had Generating Force and Operating Force. In December 2004, they were SPFs, KNs, CLTs, and Virtual Action Learning Teams.<sup>103</sup> In October 2003, they were SPF Block 1 and CLT Block 3 with the supported programs as Block 2. And as portrayed above for the DA decision brief in July 2003, the WKN System was approved with a banner across the model expressing the overarching primary objective of High-Performing Units and CLTs. Examples from the 1-41 Mech OIF 1 scenario (Appendix E) were explained to demonstrate uses of WKN.

The changes in the BCKS model (as illustrated between Figures D-4 and D-6) reflect a greater understanding and increased experience with IT and KM. Further changes seem certain as IT and KM are more broadly applied across Warfighting Mission Area (WMA) and Business Mission Area(BMA), the Army enterprise, and as KM evolves to address new tasks associated with stability operations. Application to JIIM drug enforcement operations is described in Appendix L. Perhaps the name of that part of AKM Goal 2 directed at Business Transformation may return to Warrior Knowledge Net or another title more descriptive of KM. It is clear, however, that HP CLTs are not new to WKN/BCKS. BCKS returns to its root concepts.

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103 Virtual Action Learning Teams subsequently described as Action Teams (AT). See Introduction p. 9.

## Appendix E.

### Battle Command Knowledge System in Support of 1st Battalion, 41st Infantry (Mechanized), 1st Armored Division, Operation Iraqi Freedom

The scenario below was originally prepared in response to a DA G-3 requirement to describe how a mature BCKS (then described as the Warrior Knowledge Net [WKN]) would have been employed in OIF.<sup>104</sup>

The actual history of the 1-41 Mech in OIF is an exceptional example of flexible and adaptive unit employment. The 1-41 Mech and elements of 2nd Bn, 70th Armor deployed from the 1<sup>st</sup> Armored Division (1 AD) at Ft Riley, Kansas directly into Kuwait to provide mechanized infantry support to forces in Kuwait. Thus, 1-41 Mech deployed as a separate battalion Task Force of infantry and tank companies outside of a traditional brigade organization. All CLTs joined new, previously unknown leader teams. Initially attached to the 3rd Infantry Division Mechanized (3 ID), the 1-41 Mech was subsequently attached to the following: 18th Military Police Brigade (18 MP); 2nd Brigade, 82nd Airborne Division (2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN); and the 101st Airborne Division (Air Assault) (101 AASLT). It was a combat unit in shifting task organizations. In each new attachment, leaders in 1-41 Mech had to synchronize quickly with existent leader teams, while learning the TTP of the gaining unit. In the scenario that follows, BCKS is described as it could have provided essential leader team integration opportunities as chains of command, chains of functional support and staff leader teams changed frequently.<sup>105</sup> When 1-41 Mech joined each new organization and its higher headquarters, it had to rapidly mesh TTPs with each battle-

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104 “On 7 May 2003, the Army CIO/G-6 met with the G-3 to discuss the way ahead on Warrior Knowledge Network (WKN). Enterprise Integration, CIO/G-6, supported by DAMO-TR, G-3, briefed WKN to the G-3 to obtain his guidance and approval of the WKN program, an action plan to field WKN capability for current operations, and seed funding for FY 03-04. The G-3 expressed his support and his view that the bill should compete in the Training Program Evaluation Group. However, he made definitive approval of program, plan and resources contingent on successful coordination of the requirements and development of a scenario showing WKN in action in the 1st Battalion, 41st Infantry...” Part 1, Background “Warrior Knowledge Network at War, Today and Tomorrow: Supporting 1st Battalion, 41st Infantry (3 ID) Version 1.01 21 May 2003 p1.

105 The same situation occurred in subsequent stability operations. These were clearly JIIM operations that also involved joint and likely multi-national chains of coordination. These are not discussed in this combat vignette but are discussed in Appendix K.

field operating system (BOS). The shared Warrior Knowledge Base (WKB) plus quick response teaming exercises and procedures provided by BCKS, had it been a mature KM capability in OIF 1, would have been invaluable in sustaining effective battle command.

## A. General Situation, 2003

1-41 Mech has had several days of tough fighting against a determined enemy. Now the battalion is disposed in combat laagers caught in a vicious sandstorm. The bad news is that the tempo of operations has slowed greatly. The good news is that there is a welcome opportunity to rest, rearm, refit and fix some TTP issues that occurred after initial contact. The weather should break in 36 hours. Then the attack will continue. The command group awaits a new Fragmentary Order as they transition from attachment to the 18 MP Bde to attachment to the 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN.

With very limited visibility, howling winds, and sporadic enemy contact, travel is very limited. Fortunately, 1-41 Mech is deeply into the BCKS intensive collaboration that sustain shared SKA of SPFs, KNs, ATs and CLTs. These digital networks of expertise, knowledge sets, and tools enable leaders to meet virtually to fix immediate problems and acquire or create new capabilities. In the process, they learn and develop before, during and after doing.

Several challenges must be met by 1-41 Mech ... now!

- Leader combat losses. While overall losses have been light, several key leaders have been wounded in action or killed in action (KIA) and must be replaced. Their replacements must be integrated rapidly into their leader teams. The 1-41 Mech must replace the A Company Commander, the C Company First Sergeant, and the Battalion S2.
- Poor execution of TTPs in several areas:
  - Employment of fires. A battalion hasty breach of an obstacle suffered from poor coordination of direct and indirect fires. The support force direct fire was masked early. Artillery obscuration of the breach site did not shield the assault force from Iraqi anti-tank fires. Supporting attack helicopters did not have even the most rudimentary battalion graphics for the hasty breach.
  - Casualty evacuation. CASEVAC was poorly coordinated. Coordination proved too slow and inadequate for timely evacuation.

- Battle Damage and Repair. Battle Damage and Repair was too slow, although no one is certain why.

This scenario assumes that there is unrestricted, secure worldwide web access for leaders in 1-41 Mech during the tactical pause. That was not available during OIF 1 and is problematical even now; however, it appears increasingly likely it will be available in several years given developing capabilities of the tactical Internet. In any case, access would be prioritized by the chain of command to provide access for BCKS use. Several divisions are currently working to provide web access to company level, perhaps utilizing Force XXI Battle Command, Brigade-and-Below (FBCB2)—Blue Force Tracker (BFT) or Enhanced Position Location Reporting System (EPLRS). OPSEC is not addressed specifically in this example. Per direction from DA G-3, the DA CIO/G-6, in support of CG CAC, is working to place BCKS on the Secure Internet Protocol Router Network (SIPRNet). The shared WKB and quick response teaming exercises and procedures provided by BCKS would have been invaluable in sustaining effective battle command in the 1-41 Mech.

This scenario assumes current BCKS capabilities proposed for fielding were in place and fully operational during OIF 1 combat operations. It portrays a vision of intensive collaboration within the battalion during a limited period of time in the middle of a violent mid-intensity conflict. BCKS would have been used by 1-41 Mech as it trained in CONUS, deployed, and then adjusted TTP for imminent tactical operations. More BCKS uses certainly would have emerged during the multiple changes in task organization experienced by 1-41 Mech, but the responses during the 36-hour tactical pause presented in the scenario are grounded in routine BCKS practices within 1-41 Mech that would have been supported by task training and competency-based learning prior to deployment from Ft Carson. They include, but are not limited to, the interlocked application of SPFs, KNs, ATs and CLTs.

## **B. An Enhanced Today, Spring 2003**

### **1. Leader Combat Losses**

The BCKS proved invaluable in rapid leader teaming to replace the lost first sergeant, company commander and S2. All three replacements had all relevant 1-41 Mech TTPs available in the 1-41 Mech WKB, which was downloaded from AKO before deployment into the virtual team platform, which combines peer-to-peer and

web-based capabilities. It was tailored as much as possible to the unfolding mission and updated with rapid lessons learned, which also were transmitted to AKO when bandwidth allocation permitted.

### **Structured Professional Forums**

In the months preceding the deployment to OIF, the battalion leaders drew on the emerging nested network of SPFs that were already structured into the business of war fighting. Some are more extensive than others, since local need and leadership has come into play. Several representative SPFs created within the overall Unit Knowledge Network are relevant to this fight.

All of the First Sergeants in the 1 AD BCT at Fort Riley formed a sub-forum, commonly referred to as a rally point,<sup>106</sup> on the First Sergeant Net. This is a global SPF within NCO.mil, the nested network of NCO SPFs within the Leader Network. The First Sergeants are accustomed to getting doctrine and TTP questions answered by NCO Net, the KN at the U.S. Army Sergeants Major Academy (USASMA), which also includes the NCO Knowledge Base and Request for Information (RFI) System. While waiting to deploy, the 1-41 Mech First Sergeants joined a SPF of First Sergeants in their gaining brigade in the 3 ID. They have been sharing lessons learned directly with them. Knowing they faced a dangerous fight, the combined SPFs developed their own standard operating procedure on the best ways to bring a First Sergeant replacement into the battalion, and into their SPF. The Battalion Command Sergeant Major (CSM) agreed after checking with the theater CSM SPF on the “best practice” for doing this. The theater CSM SPF had in turn had checked with USASMA at Ft. Bliss using the RFI System within the Rapid Capabilities Generation Network of BCKS.<sup>107</sup> Now the First Sergeants of 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN, to which 1-41 Mech is now attached, await formal designation of the new C Company First Sergeant. They know exactly what to do and exactly how to use the SPF to bring the new First Sergeant into the horizontal leader team of all the First Sergeants in 1-41 Mech. Equally important, they share basic Army values and the SKA of team leadership—shared trust, shared vision, shared competence, and shared confidence—a strong chain of functional support.

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106 A rally point is a pre-arranged place to meet as a result of unexpected change. Within the BCKS context, it is a separate place to meet virtually with a smaller group of individuals from a larger forum.

107 This network has been subsumed into the Center for Army Lessons Learned (CALL), Ft. Leavenworth, KS.



## **SPFs supported by Knowledge Nets**

The S2 belonged to a SPF of brigade and battalion S2s in theater (Intelligence Support in the Combined Arms Network of the larger BCKS Unit Knowledge Network). On the eve of war, following best practices for learning “how” rather than “what” to think (pioneered in XO/S-3 Net, with which they worked closely), they had developed an interactive, scenario-based module on how to think like the enemy. This focused on how the Iraqis might be expected to adapt since the last war. The maneuver S2s in theater exchanged information and intelligence of particular concern to S2s in maneuver battalions. They found this so satisfactory that, just before the ground attack began, they formed a sub-SPF of S2s within the divisions and separate brigades to exchange quick response intelligence among and between each other. They too had considered how the SPF might react if one or more S2s were killed, but had done little preparation. Nevertheless, each knew what his or her challenges had been in getting up to speed, and they were ready to welcome and provide helpful tips to the new S2. The Military Intelligence Company Commanders were invited to join this SPF.

All of the company commanders in the 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN monitored CompanyTeam.mil. Several supported Command Net, the umbrella SPF for battalion and brigade commanders in the BCKS Leader Network. Several were active participants in CompanyTeam.mil and its 3 ID sub-community until the offensive operations began, despite the demands on their time. They were accustomed to intensive collaboration that generates shared SKA of trust, vision, competence and confidence. Since CompanyTeam.mil had integrated closely with the Center for Army Lessons Learned (CALL), the result had been rapid validation and dissemination of lessons learned during preparations in theater. The 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN Company Team Rally Point had planned to share tips when there was a break in operations. The company commanders in 1-41 Mech subsequently agreed to establish their own mini-SPF during the pause just to share experiences by BOS. All along, the two captains on the brigade staff viewed as the most likely company commander replacements followed CompanyTeam.mil, and participated in the 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN sub-SPF rally point. When one of them assumed command of A Company, he was up-to-date on issues and tips, and networked completely with his fellow company commanders. <sup>108</sup> Sharing experi-

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<sup>108</sup> Execution of the company commander replacement process is highly dependent on where 1-41 Mech was attached when the company commander was KIA. Many battalion commanders would most likely select a new company commander from the most capable leaders already assigned to the battalion.

ences by BOS during the pause, he benefited greatly from the mini-SPF officer professional development sessions, conducted on the AT software working in peer-to-peer mode. An in-theater CALL/ Marine Corps Center for Lessons Learned AT monitored officer professional development and provided insight into how Marine Corps units had countered adaptive tactics used by anti-coalition forces for the first time the morning before. These insights were put to use that very night when the 1-41 Mech experienced its first taste of these tactics in the driving sandstorm. As soon as command allocation of bandwidth permitted, the Lessons Learned AT transmitted the electronic record of the officer professional development to the BCKS Rapid Capabilities Generation Network (CALL), which worked the implications with the relevant KNs, SPFs and ATs. The 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN sub-community of XO/S3 Net, drawing on their global SPF, had developed the interactive checklist, which the battalion commander and staff now applied to support the new A Company Commander.

At Fort Riley, the 1 AD Family Support Community of Practice with its Crisis AT rallied to support the families of the KIA/ wounded in action. Confidence in the effectiveness of those BCKS structures had eased the minds of the 1-41 Mech leaders and soldiers throughout the operation.

### **Virtual Leader Teams**

The 1-41 Mech had served as the proof-of-principle for CLTs at the NTC shortly before notification of deployment from Fort Riley to Kuwait. They had practiced intensive collaboration that generates the shared SKA of team leadership. They had mastered the emerging leadership doctrine for high performing leader teams, and gained proficiency in the new virtual team platform, which combined peer-to-peer and web-based capabilities. The peer-to-peer enabled them to operate off-line, on their FBCB2-BFT, or on any other in-theater network. The web-based capability enabled them to operate online with the distributed nested network of SPFs, the WKB, the Training Support Toolkit, and the Reachback Toolkit (RFI System and networked ATs) in distributed BCKS. They were the test unit for the Leader Development Toolkit refined by XO/S-3, Command Net, CompanyTeam.mil and NCO Net. The toolkit was available on BCKS melded with and tailored to the global SPFs. It was embedded in the virtual leader team platform, for peer-to-peer and offline use.

## **Commander Leader Teams**

The **Chain of Command (Brigade-Battalion-Company)** worked together extensively in the 3 ID BCT prior to H-Hour to become a high-performing leader team. Both the brigade and battalion commander had practiced team decision-making, teamwork, and team leadership at the School of Command Preparation (SCP). The company team commanders had participated in Nested Leader Team training at Fort Knox or Fort Benning. One had participated in the Stryker BCT leader team training. Through practice, and by making minor additions to their AARs as they worked through vignettes in “Think Like a Commander” and “Online Duffer’s Drift”, all had become accomplished in building shared vision, shared trust, shared competence and shared confidence within the vertical command team. They used vignettes and suggested AAR “Tips for the Trainer” from Fort Leavenworth, Fort Benning and Fort Knox, with local Southwest Asia modifications agreed to by the division. Using their CLT platform embedded in their FBCB2 and on laptops, they were able to work online, peer-to-peer, and offline with the Leader Development Toolkit. As soon as commander 1-41 Mech joined a new chain of command (in 3 ID, 18<sup>th</sup> MP Bde, 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN, or 101 AASLT), he entered into a comparable command team. Sharing of past common exercises practiced at the SCP by all brigade and battalion commanders in theater provided the shared context essential to rapidly develop rudimentary team leadership in the new chain of command. Sharing was expected and routine.

Given this common exercise context, the battalion commander knew from past LTXs in the 3 ID, the vision, trust, competence and confidence of the brigade commander and, in fact, the entire leader team. With the limited time available during the tactical pause, the battalion commander sat down, eyeball to eyeball, with the replacement company commander. He talked the company commander through various common vignettes previously trained by the 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN chain of command team, with the help of the off-line virtual team platform and with a few insights and AAR content included from recent combat operations. They also discussed the A Company strengths and weaknesses provided by the battalion staff. Commander 1-41 Mech hoped to do this before they had a chain of command team virtual hot wash that drew on shared context of pre-attack exercises similar to what they had just been through in combat, but there might not be time for this. Building that new chain of command team was helped greatly because the new A Company

Commander had formerly been assigned to the S-3 staff of the 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN Brigade. He knew the brigade TTP and the overall tactical situation. Further, the brigade commander knew him well and had earmarked him for company command. The battalion commander drew on the past LTX contextual content that was shaped to focus on developing shared trust and confidence during their one-on-one meeting.

For the new First Sergeant, preparation proceeded exactly as described above for the new company commander, but now the leader team comprised the brigade and battalion CSMs and the First Sergeants. These formed a CLT along the **NCO Chain of Functional Support**. All team members conducted high performing NCO leader team building exercises related to general NCO responsibilities. This was done at the USASMA or the various Advanced NCO Courses, and then used again many times awaiting H-hour to get the vertical NCO leader team jelled in the 3 ID, 18<sup>th</sup> MP Bde, 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN and 101 AASLT Brigades. The 1-41 Mech CSM hoped to work through several of these exercises with the new First Sergeant before they had a NCO chain of functional support team virtual AAR for “fixing” CASEVAC. He planned to draw on shared context from pre-attack exercises. There was time for one exercise using the peer-to-peer capability of the teaming platform for one-on-one preparation. The CSM knew that the new First Sergeant needed to get together quickly with his new company commander and the subordinate platoon sergeants. In fact, in clear recognition of the need to get this leader team “set” as rapidly as possible, the new C Company First Sergeant came from within the battalion. The battalion selected an available and promotable sergeant first class who was already fully familiar with 1-41 Mech TTP in the 1-41 Mech WKB, which was archived on AKO and tailored to OIF in the virtual team platform. He had prior membership in several relevant NCO and functional SPFs, and thus was “networked” with other key NCOs in 1-41 Mech. His participation in previous brigade NCO leader-team exercises preordained ready acceptance into the 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN brigade CSM’s functional chain of command team. Furthermore, he was fully familiar with mounted operations. All this seemed certain to rapidly make him an effective member of the reconstituted leader team.

The new S2 joined the existing 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN Intelligence and Electronic Warfare (IEW) commander leader team, the **IEW Chain of Functional Support**. This included the Brigade S2, the Military Intelligence Company Commander and the Battalion S2s within the 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN. This leader team also had been conducting

team-building exercises developed by Fort Huachuca throughout the deployment. These exercises were designed to develop a high-performing leader team, teamwork, team decision-making, and team leadership similar to what was available for the chain of command. There was more overlap between the IEW leader teams, both vertical and horizontal (S2 staff teams), and the various IEW SPFs due to their interrelationships with Army, other Service and national IEW assets. There was a forum of IEW leaders ready to help the new 1-41 Mech Infantry S2. He came from the 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN S2 staff so he was already familiar with 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN IEW TTP in the 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN WKB.

### **Horizontal Leader Team**

The 1-41 Mech Battle Staff Team led by the Executive Officer (XO) met an even greater need for the new S2, which was to smooth his integration into the battle staff. The battalion XO immediately saw the need to reassemble the staff team. An introductory face-to-face meeting, with good NCOs reinforcing an immediate climate of trust, was followed by a quick run through of useful teaming exercises provided by the XO-S3 Net, the global SPF headquartered at the Command and General Staff College (CGSC). The commander and XO paid more attention than usual to the virtual team collaboration that used the MDMP to work the brigade Fragmentary Order, intervening with an occasional deft touch calculated to promote battle staff cohesion. Each leader drew on associations in various SPFs, KN, and ATs to enhance their performance and become a HP CLT.

## **2. Poor TTP Execution**

The 1-41 Mech Infantry leveraged BCKS to fix TTP in the three areas mentioned above: 1) battalion hasty breach, 2) CASEVAC and 3) battle damage and repair.

### **AT- Battalion Hasty Breach**

PROBLEM: A battalion hasty breach of an obstacle suffered from poor coordination of direct and indirect fires. The support force direct fire was masked early, artillery obscuration of the breach site did not obscure the assault force from Iraqi anti-tank (AT) fires, and supporting attack helicopters did not have even the most rudimentary battalion graphics for the hasty breach (there was no FBCB2 or BFT available).

**ACTION:** While there were many individuals involved, the fix proved relatively easy. The 1-41 Mech S2, S3, and Fire Support Officer (FSO), the Aviation Battalion S3, the Engineer Battalion S3, and the Direct Support Artillery Battalion S3 met as a hasty AT and conducted a virtual “rock drill” rerun of the botched breach. Twice, they queried the Red Leg [Artillery] Hotline, using the RFI System component of the Fires Support Net of the BCKS Combined Arms Network. Supported by the near real-time answers from Fort Sill and the Operations Group at the NTC, they isolated the coordination errors, agreed on what had to be done, and revised their TTP. Then they returned to their organizations to make the appropriate fixes.

### **AT-Casualty Evacuation**

**PROBLEM:** CASEVAC was too slow and poorly coordinated for timely evacuation. In this situation, difficulties intersected with an organizational learning challenge, since the Combat Training Center (CTC) Trends Reversal Program had identified important gaps in TTPs for NCOs on the battlefield.

**ACTION:** Fortunately, a BCKS Rapid Capabilities Generation Network, integrated with CALL, had been established before operations to discuss lessons learned. Supported by an AT and closely partnered with NCO.mil and the NCO Net headquartered at the Sergeant Majors Academy, it was prepared to handle just such coordination difficulties as 1-41 Mech experienced, and already started working the CASEVAC issue.

The Rapid Capabilities Generation Network had linked with the KNs at USASMA—NCO Net, and at Health Services Command—Health Services Net, to address the doctrinal and established TTP issues. In structured discussion, governed by SPF conventions, both new NCO and medical TTP were quickly developed, vetted, and validated. The AT, comprised of SMEs from both KNs and orchestrated by CALL, created validated lessons learned, i.e., new integrated TTPs. The AT coordinated these in near real time using the RFI System (invented by CALL and first applied for this purpose by the Red Leg Hotline) for validation by all stakeholders. The fully validated knowledge objects were then uploaded into the Training and Doctrine Development Configuration, which transformed them into approved doctrinal objects in the BCKS WKB. These in turn were downloaded into the 1-41 Mech virtual team platform. During a three-week period on the eve of war, the SPFs, with their supporting ATS orchestrated by the CAC, helped embed them in interactive training support

packages (TSP) and eTDGs, and produced a mini-course in the Advanced Distributed NCO Education System, available online in the Learning Management System.

Now, as the sandstorm raged, an AT within the 1-41 Mech cross-walked their recent shortfalls with the Rapid Capabilities Generation AT, backed by the RFI ability orchestrated by CALL as the knowledge integrator. This resulted in a rapid fix, based on the determination that part of the problem stemmed from a simple breakdown in coordination, and part of the problem stemmed from a shortfall in approved TTP. That shortfall was fixed on the fly with instant dissemination to all Army and Marines units. The CASEVAC chain of support had trained frequently on eTDG. During the tactical pause, they returned to the common context of an eTDG exercise with several changes introduced to reflect just-completed combat actions and the new lessons learned.

### **AT-Battle Damage and Repair**

**PROBLEM:** Battle Damage Repair was too slow. The battalion was uncertain why.

**ACTION:** Very little could be done to fix this problem during the pause, other than set the stage. The maintainers were consumed with organizational maintenance problems. Coming from attachment to an MP brigade, 18<sup>th</sup> MP Bde and just attached to a light infantry brigade, 2<sup>nd</sup> Bde, 82<sup>nd</sup> ABN, 1-41 Mech needed to cross commands to get technical support. A solution was quickly set in motion. The maintenance functional leader team met briefly online with a hasty AT for peer assistance formed by using the RFI system to ask the Rapid Capabilities Generation Network for help. The associated standing AT used CALL Knowledge Reach to assemble the hasty peer-assist AT from KN expertise for the Abrams tanks available at Aberdeen Proving Ground, Fort Knox, and the Tank Automotive Command (TACOM) and General Dynamics. Given the press of time, the 1-41 Mech maintenance functional leader team, working within the distributed virtual team platform, could only lay out the parameters of the problem, prodded by probing questions from the peer-assist AT. As the 1-41 Mech team worked feverishly to execute fixes during the pause, additional questions flowed in from Aberdeen Proving Ground. The maintenance SPF in 1-41 Mech collected that information as they worked, and quickly spoke it into the virtual team software. The day after the 1-41 Mech left its combat laagers, the hasty peer-assist was completed on the move, with the Combined Arms Network AT

cross-walking its solutions with the 1-41 Mech maintenance SPF, and then with the 1-41 Mech maintenance functional leader team.

## C. Summary

The events described above are fictional but they represent current “best thought” as to how BCKS could influence the conduct of combat operations in the vignettes represented.<sup>109</sup> Others could think of many more vignettes focused on the many SPF, KNs, ATs and CLTs that would be clearly present in 1-41 Mech and associated units. Nevertheless, the scenario above is offered to provide a common context for structuring proofs of principles for the BCKS development effort. Imagine what the effect could be, then build to that vision and assess the outcome. That could be a BCKS approach for HP CLT development while establishing a general framework for expansion of JIIM HP CLTs in support of the ARFORGEN Road to Development preparing to conduct offensive, defensive and stability operations.

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<sup>109</sup> I wrote the initial 1-41 scenario to put a conceptual KM mark on the wall responsive to the “vision” requirement established by then LTG Cody. There have been many improvements to this scenario over the past three years as hoped for good ideas emerged confirming the 1-41 scenario as a useful “soup stock pot” for thinking about mid intensity use of KM/BCKS.



## Appendix F.

### Generating High Performance: SPFs, KNs, ATs and CLTs Likely in 1-41 Mech

#### A. Leader Participation

Examples of overlapping collaborative BCKS components occurring regularly in a typical combat battalion such as 1-41 Mech are outlined below.<sup>110</sup> The leader belongs to each of the SPFs, KNs, ATs and CLTs listed below. His selective participation in each would be dependent largely upon usefulness in support of mission execution.

##### 1. Battalion Commander

- *SPFs* (or Rally Point in a larger SPF)
  - Battalion commanders in the division
  - School of Command Prep Class
  - Command and General Staff Officer Course (CGSOC) Class
  - Battalion commanders in the Corps
- *KNs*:
  - US Army Infantry School (USAIS) Infantry Leaders
  - CTC Chiefs, Operations Groups to Commanders
  - Ranger Tips
  - Infantry Tactics Instructors Net
  - CALL Tactical Command Insights
- *ATs*:
  - Home Station Operations Center Commander, Company Commanders, Battalion Executive Officer, Battalion CSM (Subject: Family Support Teams)
  - Battalion commander, Division G2, Corps G2 (Subject: more “actionable” intelligence)
- *CLTs*:
  - Company, battalion and brigade commanders
  - Battalion commanders in the brigade

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<sup>110</sup> These examples were developed in 2004 and 2005 to provide additional practical illustrations of the processes for generating HP CLTs.

## 2. Battalion S3 (Comparable links for other battalion staff officers)

- *SPFs* (or Rally Point in a larger SPF):
  - XO-S3.net
  - Division S3s
  - Division Fire Support Coordinators
  - CGSOC Class
  - 2nd Ranger Battalion officers
- *KNs*:
  - USAIS Infantry Leaders
  - CALL Maneuver S3s
  - Ranger Tips
  - Infantry Tactics Instructors Net
- *ATs*:
  - Battalion S3, Battle Captains, Company commanders (Subject: better operations reporting)
  - Battalion S3-Direct Support Artillery battalion S3-Battalion FSO (Subject: improved fire support coordination)
  - Battalion S3-Battalion S2-MI Company commander (Subject: more “actionable” intelligence)
  - Battalion S3, Battle Captains, FSO, Aviation LNO, Engineer company commander (Subject: fixing breach operations)
- *CLTs*:
  - Battalion and brigade S3s, division G3
  - Battalion XO, battalion S1, S2, S3 and S4
  - S3s in the brigade

## 3. Company Commander

- *SPFs* (or Rally Point in a larger SPF):
  - Companycommand.army.mil
  - Scout platoon leaders, Ranger School Class
  - 1stRanger Battalion officers
  - Co commanders in the brigade
- *KNs*:
  - USAIS Infantry Leaders
  - Bradley company commanders
  - CALL maneuver commanders

- NBC Prep
- Ranger Tips
- *ATs*:
  - Company commander, company XO, Forward support company commander (Subject: Bradley operational readiness rate)
  - Company commander, Fire Support Team, battalion S3, battalion FSO, (Subject: better fire support coordination)
  - Company commander, Engineer company commander, battalion S3 (Subject: “Fix breaching team”)
- *CLTs*:
  - Company and battalion commanders, brigade commander
  - Squad and platoon leaders, company commanders
  - Company commanders, company XOs, company 1SG

#### 4. Battalion Command Sergeant Major

- *SPFs* (or Rally Point in a larger SPF):
  - CSMs in Div
  - Sergeants Majors in SMA.net
  - NCOteam.org
  - USASMA Class
- *KNs*:
  - USASMA Knowledge Net
  - eSergeant Network
  - USAIS Infantry Leaders
  - CALL NCO Leader Support
- *ATs*:
  - Battalion CSM, battalion operations sergeant, HHC First Sergeant (Subject: TOC operations)
- *CLTs*:
  - Battalion commanders battalion CSM
  - Battalion CSM, Company 1SGs

#### 5. Company First Sergeant

- *SPFs* (or Rally Point in a larger SPF):
  - 1SGs in the brigade
  - FirstSergeant.com
  - NCOteam.org; Advanced NCO Course Class
  - First Sergeants Course

- Bradley Master Gunners
- *KNs*:
  - eSergeant Network
  - USAIS Infantry Leaders
  - CALL Maneuver First Sergeants
  - Ranger Tips
  - Infantry Tactics Instructors Net
- *ATs*:
  - First Sergeant, Fire Support Coordinator First Sergeant (Subject: improved CASEVAC)
- *CLTs*:
  - Squad leaders, platoon sergeants, first sergeants
  - First sergeant, battalion CSM, brigade CSM
  - Battalion CSM- Company First Sergeants

The examples above are hypothetical and are drawn from the 1-41 Mech scenario. By their presence and operation, the various BCKS components generate both peer (horizontal) and hierarchical (vertical) teams. As each SPF, KN, AT and specifically CLT, functions, formal and informal teams emerge naturally at often unpredictable rates. Teamwork, some team decision-making and team leadership build as a routine byproduct of professional collaboration. Intensive collaboration that generates the shared SKA of team leadership (shared trust, shared vision, shared confidence and shared competence) is likely the most important part of general team building stimulated by BCKS, at least as BCKS applies to CLTs.

Certainly most teams are “good”; however, some are “bad” or dysfunctional for the purposes of the unit. Here the authorities and responsibilities of the various CLTs must prevail. But as they are participants in peer as well as hierarchical teams, CLTs have their collective fingers on the pulse of building knowledge and understanding. In combat operations, feedback on the bad or dysfunctional team is immediate and generally effective. The enemy acts, immediate AARs are conducted, and TTPs are modified rapidly as has been demonstrated and supported by leaders in the Cavalry Network during OIF2 and subsequent Divisional and BCT nets in both OIF and OEF. As operations are reviewed in an AAR context, less capable CLT members improve their team leadership SKA. Competency-based learning is clearly as important to combat performance as is task-based training.

As combat support and combat service support organizations and functions are added, the magnitude of the web of collaborative professional communications fostered by BCKS comes into focus. It can be everywhere across the unit. Subject to the availability of bandwidth, there is near-continuous sharing of professional data and information that generates shared knowledge and actionable shared understanding, both peer and hierarchical, as represented by the 1-41 leader use of BCKS described above.

The end state is accelerating shared professional understanding that permeates every aspect of unit performance. That shared understanding generated by intensive collaboration that generates shared SKA eventually creates high performance at every echelon, probably from the bottom up.

A central issue for important future research could be the rate of transition to high performance and determination of MOP/MOE of intensive collaboration and team leadership SKA to be embedded in BCKS tools for use by the unit commander to assess progress. The next step could be how to accelerate these processes, particularly in JIIM stability operations.

## **B. Transition from Data and Information to Knowledge and Understanding in 1-41 MECH**

The botched hasty breach example in the 1-41 Mech scenario (Appendix E) provides an excellent example of timely breach-related data and information as they are likely to be generated by SPFs, KNs, ATs and CLTs. Exchange of this data and information leads to subsequent knowledge and understanding within various concerned CLTs (chains of command, functional support [NCO] and functional support [Engineer]). Then it describes interactions between each and demonstrates how data, information, knowledge and resultant understanding improve as they flow among and between SPFs, KNs, ATs and CLTs.

These interactions involving the professional flow of shared data, information, knowledge and understanding reflect the execution of the intensive collaboration process. The interactions occur, grounded in basic shared trust, shared vision, shared competence and shared confidence developed among and between unit leaders in preparation for commitment in OIF. As the improvement accelerates, high performance is attained.

The TTP problem below is an extension of the 1-41 Mech scenario (Appendix E).

## **AT- Battalion Hasty Breach**

**PROBLEM:** A battalion hasty breach of an obstacle suffered from poor coordination of direct and indirect fires. The support force direct fire was masked early, artillery obscuration of the breach site did not obscure the assault force from Iraqi anti-tank (AT) fires, and supporting attack helicopters did not have even the most rudimentary battalion graphics for the hasty breach (there was no FBCB2 or BFT available).

**ACTION:** While there were many individuals involved, the fix proved relatively easy. The 1-41 Mech S2, S3, and FSO, the Aviation Battalion S3, the Engineer Battalion S3, and the Direct Support Artillery Battalion S3 met as a hasty AT and conducted a virtual “rock drill” rerun of the botched breach. Twice, they queried the Red Leg [Artillery] Hotline, using the RFI System component of the Joint Fires Support Net of the BCKS Combined Arms Network. Supported by the near real-time answers from Fort Sill and the NTC Operations Group, they isolated the coordination errors, agreed on what had to be done, and revised their TTP. Then they returned to their organizations to make the appropriate fixes.

## **1. Examples of breach-related data generated by SPFs, KNs and ATs that became information**

**SPFs:** 1-41 Mech platoon leaders. Data: Three KIA from direct fire at the breach site. Information: Sappers were not provided obscuration from aimed enemy fire.

Artillery battalion S3s in the division. Data: Insufficient obscuration of the 1-41 Mech breach. Information: Direct and indirect fire planning was uncoordinated.

**KNs:** Red Leg Hotline and NTC Operations Group Werewolves<sup>111</sup>. Data: Smoke was mislocated. Information: No correct meteorological data was available during a local storm. There was no adjustment of fires by aviators who could observe the breach site.

**ATs:** 1-41 Mech S2, S3, FSO, Engineer battalion S3. Data: Late report of sapper KIA. Information: Breach party communications were out during the breach. There was no back-up for the support force.

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<sup>111</sup> Werewolves are the Fire Support OCs at the NTC

## 2. Shared knowledge and then shared actionable understanding generated in CLTs from data and information provided by SPFs, KNs and ATs

**1-41 Mech Chain of command:** (Battalion commander, company commanders, passing force lead platoon leader). Knowledge: 1-41 Mech lacked direct influence at the breach site. Actionable understanding: Fix the breach TTP to ensure the passing company XO is at the breach to coordinate and focus unanticipated support.

**Chain of functional support (Engineer):** (Engineer company commander, Engineer battalion commander, division engineer). Knowledge: Breach Force Commander did not coordinate sufficiently with the support force or passing force commanders. Actionable understanding: Need to set up a required pre-breach rock drill, virtual or grouped.

**Chain of functional support (NCO):** (Brigade CSM, 1-41 Mech CSM, 1-41 Mech operations sergeant, Engineer company 1SG). Knowledge: There was a TTP failure due to the loss of a key sapper sergeant. No pre-combat inspection of alternate signals. Actionable understanding: Need for a NCO “huddle” on continuing combat pre-combat inspections.

## 3. Data, information, knowledge and resultant actionable understanding improvement as they flow among and between SPFs, KNs, ATs and CLTs

- The AT informs the CSM of the communications failure. CSM actions the NCO chain of functional support CLT.
- SPF data (three KIA at breach) triggers the chain of command CLT that leads to an understanding of the need to change breach TTP.
- KN information (no meteorological backup) triggers the AT to ensure aviation can observe the breach site.

Note that data, information, knowledge and understanding appear to move on separate paths simultaneously, occasionally crossing or converging, as knowledge becomes actionable leader understanding. That interaction is intensive peer and hierarchical collaboration that generates shared SKA of team leadership. It would seem that accelerated understanding through this intensive collaboration process is highly desirable and that the various SPFs, KNs, ATs and CLT themselves could develop “best practices” designed to accelerate the flow from data to information to knowledge to

shared understanding that is responsive to chain of command requirements. In effect, drawing upon BCKS components can routinely accelerate decision processes, culminating in high performance. This acceleration could be a central advantage of BCKS as it is applied to JIIM situations. The multiple paths should facilitate mutual understanding across cultures.

A World War II example of an accelerated decision process “best practice” is skip-echelon communications authorized in the close air support request system. Silence by an echelon of the Battalion-Regiment-Division CLT signified approval. Similar processes could be established to accelerate responsiveness for other BCKS components for individual leaders and CLTs.

To view this process in reverse as it occurs regularly, understanding of data requirements associated with planning a particular mission triggers specific combat information collection plans. Many combat commanders use similar processes, seeking explicit data, information, or knowledge to trigger their intuition in decision-making. This may be a central insight in realizing improved battlefield performance through HP CLTs. Shared actionable understanding of important cues or patterns can stimulate feedback of data or information collection requirements to SPFs, KNs, or ATs within the tactical unit. They can accelerate and perhaps simplify the search for cues of imminent success or failure essential for intuition-supported decision-making. In the 1-41 Mech breach example, a specific, very basic data cue could have been confirmation that the breach graphics were on the maps of the attack aviation pilots. More cues used better seems to be a certain path to high performance.

## C. Generating high performing CLTs

Think of the hasty breach example above as one of literally hundreds of events occurring daily in 1-41 Mech in the course of combat operations. Look at the role of SPFs and KNs interacting vertically and horizontally supporting only one of the many ATs acting continuously across combat, combat support, and combat service support units. Now multiply that combination of SPFs, KNs, CLTs by tens or hundreds as multiple ATs operate routinely in combat operations.

Those interactions are intensive collaborations that generate shared SKA that in turn generate HP CLTs. These collaborations are grounded in shared basic values characteristic of America’s Army—loyalty, duty, respect, selfless service, honor, integrity



and personal courage. It is warriors sharing service beyond self to the Nation—service calling for unlimited liability that may include serious injury and potential death.

The Soldier's Creed expresses well the intensity of shared values embedded in each Soldier during the intensive socialization of Initial Entry Training:

"I am an American Soldier.

I am a Warrior and a member of a team. I serve the people of the United States and live the Army values.

*I will always put the mission first.*

*I will never accept defeat.*

*I will never quit*

*I will never leave a fallen comrade*

I am disciplined, physically and mentally tough, trained and proficient in my warrior tasks and drills.

I always maintain my arms, my equipment and myself.

I am an expert and I am a professional.

I stand ready to deploy, engage, and destroy the enemies of the United States of America in close combat.

I am a guardian of freedom and the American way of life.

I am an American Soldier."

The range and intensity of values shared by each Soldier of all grades and reflected in the Soldier's Creed is what sets CLT formation and sustainment in America's Army apart from any business or private organization and from academic team-building models based on those organizations. This is particularly the case today in the Long War when CLT are routinely formed in combat.

In combat, 1-41 Mech is a large, highly effective team composed of many subordinate peer and hierarchical teams. The unit is the product of effectively sharing Army values and the Soldier's Creed to support the basic SKA of team leadership—shared trust, shared vision, shared competence and shared confidence. The SKA are achieved through intensive training and shared confidence in their ability to accomplish assigned missions. The overlap of shared SKA approaches 100% - the product of highly competent leaders reinforced by solid, effective doctrine and TTPs. Going in to OIF, 1-41 Mech is a solid team of teams ready to exploit the capabilities of AKO/BCKS.

In a combat environment, effectiveness is self-policing (success or failure, kill or be killed - immediate assessment) and reinforcing of the SKA of HP CLTs. The current task-based Army Training System, particularly the CTC model, reinforced by competency-based learning, is designed to generate just this intensive peer and hierarchical collaboration to create shared SKA routinely. Reinforced by AKO/BCKS supporting competency-based learning, team leadership in 1-41 Mech is sustained despite combat challenges and personnel casualties.

Intensive collaboration that generates shared SKA is not that new, but the tools described above to enable it faster and better are new. The best tools may not rest as much in task training and competency-based learning programs as in leaders drawing on shared professional self-interest stimulated by routine participation in peer and hierarchical SPFs, ATs and other BCKS components. Those tools are at the heart of BCKS.

Collaboration becomes proactive based on increasing professional associations stimulated by BCKS components. Usual time constraints are mitigated by a sense of high, shared productivity in improving individual and team performance by “passionate professionals”.

Lubricated by the components of collaboration that are stimulated by IT/AKO and KM/BCKS, shared SKA are sustained as data, information, knowledge and actionable understanding pass rapidly across and among SPFs, KNs, ATs and CLTs. High performance is improved and sustained.

This example of the 1-41 Mech scenario is intended to open the professional mind to these powerful new capabilities enabled by AKO and BCKS that support task training and competency-based learning and exploit the strong shared values of America's Army.

But that support, necessary as it is, will not be sufficient for the Long War. HP CLT JIIM should be the final objective.

## Appendix G: Observations of “Best Practices” School of Command Preparation, Ft. Leavenworth

This appendix describes the pre-command learning that newly selected colonel and lieutenant colonel commanders receive at the School of Command Preparation (SCP) of CGSC, Ft. Leavenworth, Kansas. These observations were part of a more general effort by the Cognitive Engineering Science and Technology Objective program of the Army Research Institute/Army Research Laboratory “to review advanced leader learning practices at the JRTC Mission Rehearsal Exercises and in the School of Command Preparation to familiarize the Cognitive Engineering Science Technology Objective research community with the current Army ‘state of the art’ in leader learning and to assess future learning research opportunities which might be developed in conjunction with U.S. Army Forces Command and TRADOC.”<sup>112,113</sup>

The author observed one entire Tactical Commander’s Development Course (TCDC)/ Battle Commander’s Development Course (BCDC) in 2000, and two other BCDCs of two days each during April–June, 2000. All TCDCs for mounted force commanders were audited in 1993; the Commanders Reaction Course of BCDC was observed for several hours in 1998.<sup>114</sup> Insights gained during these observation periods contributed directly to subsequent development of a model for the preparation of high performing leader teams. In time, these insights, combined with extensive observation of leaders, leader teams and units at the Combat Training Centers, led to an understanding for the need to generate team leadership with shared trust, shared vision, shared competence and shared confidence.

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112 Steele, LTG and LTG Magruder, email on the subject of the Cognitive Engineering Science and Technology Objective Review of Advanced Learning Practices, Mar 15, 2000.

113 This effort was undertaken through the IDA for the Army Research Laboratory in execution of Letter of Instruction for Cognitive Engineering R&D from Dr. Robin Keese to Frederic J. Brown, Feb 11, 2000. The SCP instructional methodology explained is now somewhat dated. Today not only is there much greater focus on stability operations but also more “best practice” good ideas have been institutionalized. Good has become better and even more supportive of the development of team leadership for HP CLTs. Also important is the realization that this instruction was provided to all the senior combat leaders in the Army today who will exploit IT/KM for the Long War. Therefore this Appendix is included with comments added to relate to current force preparation issues for the Long War.

114 Digital copies of selected content of the SCP courses are available from Dr. Linda Pierce, lpierce@arl.army.mil or F. J. Brown (frederic.brown@us.army.mil).

The SCP at Ft. Leavenworth conducts pre-command learning for all colonels and lieutenant colonels going into brigade, group, regiment, battalion, and squadron commands in the Army. The SCP course lasts three weeks for tactical unit commanders. The first week (Army “Chief of Staff’s” week—literally) teaches current Army policies and programs, while the second and third weeks (TCDC and BCDC) focus on the exercise of battle command in tactical units. The overall course is two weeks for combat support and combat service support commanders because BCDC is currently omitted for commanders not assigned in the BCT “slice.”

All tactical commanders are immersed in evolving warfighting doctrine including that related to the exercise of command and control, and specifically the exercise of battle command. It is appropriate, therefore, that reviewing current “best practices” is grounded in an appreciation of emerging doctrine; doctrine reflected in two documents: FM 3.0, *Operations* and *Joint Vision 2020*. Both emphasize the importance of capable commanders.<sup>115</sup>

Battle command applies to the leadership element of combat power to operations. It is principally an art employing skills developed by professional study, constant practice and considered judgment. Commanders, assisted by the staff, visualize the operation, described it in terms of intent and guidance, and direct the actions of subordinates within the intent.<sup>116</sup>

Our thinking about command and control must be conceptually based, rather than focused on technology or materiel. Joint Command and Control is a nexus—a point of connection it serves as a focal point for humans and technology, our evolving operational capabilities, and the capabilities of the Services.<sup>117</sup>

## A. Introduction

Tactical Orders and Annexes are designed with *built in contradictions, disconnects, and tactical task ambiguity* as would be found in any unit order. Identifying and discussing these as issues helps to develop the commanders’ as-

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115 FM 3.0, *Operations* and *Joint Vision 2020* had just been published. The focus is primarily on tactical and conceptual skills, only part of the larger whole of developing interpersonal, conceptual, technical, and tactical leadership skills. Excellent leader development across all four skills was underway at Ft. Lewis under the guidance of MG Jim Dubik. See IBCT Training and Leader Development presentation, v. 8.6, June 19, 2000.

116 US Army, FM 3.0 *Operations*, HQDA, ch. 5, Battle Command, paragraph 5.1, June 14, 2001.

117 *Joint Vision 2020. America’s Military Preparing for Tomorrow*. OJCS, June 2000, p. 33.

assessment skills and facilitates the teaching of current doctrine. They are not intended to be a perfect model of an operations order.<sup>118</sup>

The above disclaimer provides an excellent primer on the course's purposes. TCDC/BCDC does not revisit CGSOC or, for that matter, CAS3. Prospective commanders are expected to have learned the staff science of MDMP. Now, they must learn to master common challenges of executing the art of battle command. With the exception of the Officer Advanced Courses (which prepare an individual for company/battery/troop command), TCDC/BCDC is the only course in TRADOC preparing commanders for execution of combat command of tactical units.

The implications of this are rather profound because this course sets the precedent for practices of commander learning throughout the Army. Training development, prepared for and proofed at CGSOC to train staff majors, may be relevant to prepare commanders in units, though that is unlikely. Not because CGSOC learning is done poorly, but because this learning content has been designed for the purpose of preparing staff leaders. Analyzing TCDC/BCDC is vital to understanding learning "best practices" related to preparing commanders.

## B. Course Design

All commanders attend TCDC, so its instructional emphasis must be on the commander's role in command and control. Currently this is applied in a maneuver BCT tactical environment. Though interesting, it is not immediately relevant for a brigade-, group- or battalion commander going to an Echelons Above Division (EAD) command, e.g., a functional brigade at Corps echelon like the Signal Brigade. BCDC, on the other hand, focuses on the art of battle command taught solely to unit commanders within the BCT, so BCDC course content can be more focused.

Detailed descriptions of course content are available as described above; therefore, with the exception of the Operations Sketch, they are not included in this report.<sup>119</sup>

The operations sketch is successfully used in BCDC and appears to be highly adaptable to distributed team learning. It could, therefore, be a useful common for-

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<sup>118</sup> TCDC export read me file.

<sup>119</sup> My observations seek learning "best practices" and their implications for the preparation of leaders, particularly commanders as individuals and as members of vertical and horizontal commander teams.

mat for broader “brown bags” in the operational Army and might be equally applicable for stability operations.

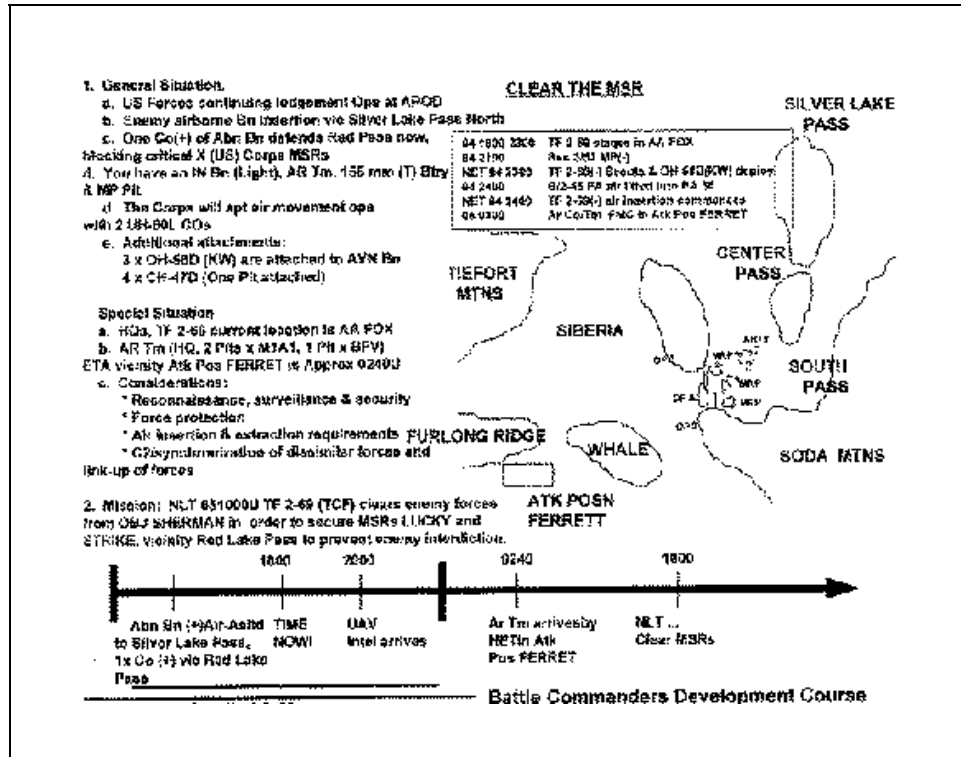


Figure G-1. BCDC Operations Sketch for “Clear the Main Supply Route”

Due to significant variations in class composition, there is considerable flexibility in course content. Commanders attend BCDC based on the date they assume command or other personnel considerations. Two BCDCs previously observed had one or more actual maneuver brigade command selectees attending.<sup>120</sup> TCDC had an engineer group commander (who acted as a maneuver brigade commander) but no maneuver brigade commanders. The engineer brigade commander did not remain for BCDC. As a result, for the BCDC I observed in entirety, with only battalion commanders present, the mission was scoped for battalion execution—to secure the main supply route. When BCT brigade commanders are present in BCDC, the BCT movement-to-contact mission is used in the course.

<sup>120</sup> When there are two maneuver brigade commanders in one seminar group, the second commander is the Brigade Reconnaissance Troop Commander, so he can appreciate the potential of this new organization. Assignments then rotate with each mission.

To provide requisite instructional flexibility given the highly variable learning audience, numerous scenarios are prepared with appropriate Operations Sketches (to bring the student into the scenario) and preloaded into JANUS: TF delay, TF movement to contact, Brigade deliberate attack, TF guard, TF clear the main supply route, and Brigade cover. Scenarios are sited in Kansas for TCDC and in Kansas and at the NTC for BCDC. This is a rich lode of instructional content for potential export.

Six instructional alternatives are grouped into several broad formats.

**1. One-on-one with the commander and instructor/coach executing missions on JANUS with the JANUS interactor serving as a subordinate commander.**



**Figure G-2. “Duffers Drift” Execution  
(Student-interactor overwatched by the instructor coach)**

Execute an order provided by TCDC with the student introduced at various points in the scenario. Each instructor prepares one student, with both instructor/coach and student working with an interactor interfacing directly with JANUS (Figure G-2). The student is presented with a situation. He or she must then issue the appropriate orders. The JANUS operator responds as subordinate commanders executing the student’s orders. The instructor/coach, in observing, interjects as an offline coach, the immediate senior commander, a subordinate staff officer, or as

appropriate, a subordinate commander. This was the format for the “Duffer’s Drift” exercises—four consecutive fights drawing essentially on the same tactical scenario, with each fight consisting of a more complex combination of METT-TC than the preceding fight. The methodology is first described in “Duffer’s Drift” by MG Swinton during the Boer War.<sup>121</sup> In the BCDC I observed, scenarios were varied to shift relative emphasis on battle command—Visualize, Describe, Direct (VDD).

If the course content and instructional method is to be successfully exported for commander team use in units, the interactor position will likely have to be eliminated. This may be feasible if a JANUS-like game such as Battle Command 2010 (BC 2010) can be used, though that may impair learning effectiveness and disturb the current instructional dynamic. More research is needed.

## **2. Student Teams enter a plan into JANUS, then execute against an instructor-scripted opposing force.**

In response to an order from higher up, plan then fight. Paired as a team, one student is the commander, another is the S-3. They work together to develop a plan, present the plan to their subordinates (the JANUS interactor), brief the other students while the instructor/coach sets up the fight as it will be represented on JANUS, and then actually fight their plan (Figure G-3). Various outcomes of each team’s fight are then presented to the entire group in an AAR format.

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<sup>121</sup> Swinton, E.D., *The Defence of Duffer’s Drift*. 1929. Text available at CGSOC Book Store. A more recent version is “Fomblers Ford” developed by Gen Paul Gorman for DARPA in March 2000 to portray likely battle challenges facing the Future Combat System (FCS) DARPA 03/00.





**Figure G-3. Student “commander and S-3 team” rehearse the order with the Instructor/coach observing**

**3. BCT brigade and battalion commanders conduct a brigade mission. Given the BCT Operation Order, students develop intent, commander’s guidance, and Commander’s Critical Information Requirements (CCIR).**

Students form a brigade combat team command group comprising the brigade commander and subordinate battalion commanders including the brigade reconnaissance troop commander. The student commands his type unit, e.g., an artillery commander will command either the direct support or a reinforcing artillery battalion. Students are presented with a prepared brigade order to conduct a brigade defense, deliberate attack or movement to-contact. They are permitted brief reconnaissance conducted on JANUS. Each must then develop guidance, intent, and CCIR for his battalion within the BCT and then explain it to the other students. Each commander then briefs his plan to execute the mission to the other student commanders. A brigade rehearsal follows (Figure G-4). Students then move to JANUS terminals where they fight their portion of the brigade fight while working with the interactor. The one instructor/coach present works directly with the brigade commander. This activity, normally lasting four to six hours, is followed by an AAR.



**Figure G-4. TCDC Brigade Deliberate Attack Rehearsal**

#### **4. Reading or operational vignette followed by group discussion.**

Students discuss general readings from the previous evening's homework. This appears to be most effective when the subsequent fight reinforces a point from the homework or discussion. For example, students read one or more of the articles in "Studies in Battle Command" prepared by the Combat Studies Institute at Ft. Leavenworth. One article discusses Custer in the Little Big Horn—his misread of the situation (faulty vision) based on his past experiences fighting Indians. A subsequent "fight" (a part of "Duffer's Drift") presents a similar situation drawing heavily on the student's ability to visualize the battlefield, therefore finding his unit in a substantial enemy "kill sack." Appropriately, SCP calls this exercise "Custer." Learning occurs when the student realizes he has been set up. It is a solid incentive for the student to carefully review subsequent course readings.

In another example, early in BCDC there was a discussion of the general principles of battle command and leadership. During the discussion, the competing requirements of mission accomplishment and force conservation came up (mission vs. casualties). Extensive discussion occurred about circumstances under which a commander might be required to leave his wounded on the battlefield, addressing the tac-

tical and moral implications. The subsequent tactical vignette, TF delay, presented exactly this tactical situation to the students. There was an extremely effective link between important doctrinal teaching points and subsequent battlefield scenarios. After each student fought a scenario reinforcing the learning objective, an excellent AAR followed. A similar technique could be applied to an Adaptive Leader Learner exercise for grouped or distributed leader team learning.

A variation of this is presenting an operational vignette to the group with discussion focusing on issues concerning the commander facing the situation portrayed in the vignette. Five such vignettes were presented in TCDC as the “Think Like a Commander” exercise—a successful ARI contribution to leader learning.

**5. An eclectic mix of the four instructional alternatives above for non-divisional CS and CSS commanders in TCDC, attempting to draw CS and CSS command and control learning from BCT mission execution.**

One sub-course (Seminar 3) was added in an attempt to present more relevant material for CS and CSS commanders who used to be required to learn through role-playing as tactical battalion commanders auditing BCT missions. Seminar 3 is a “cut and paste” from the primary TCDC which is still evolving. It is a good effort and necessary, but it is too early to comment from a “best practice” perspective.

**6. Military Operations on Urban Terrain Tactical Exercise Without Troops (TEWT)**

The students and instructor take a one-day field trip to Lawrence, Kansas where a military operations on urban terrain scenario is discussed on the ground (Figure G-5). It culminates with visits to local municipal authorities scripted to support an excellent discussion of stability operations related to the scenario.



**Figure G-5. TEWT at Lawrence, Kansas**

The design of individual exercises is in flux. Instructor/coaches are expected to reflect both on what is presented and how it might be improved. Aside from the normal CGSOC instructor preparation and conducting specific exercise “murder boards” associated with instructor preparation, it was clear that instructors are expected to contribute to continually improving the content. After each course, the course director conducts an AAR of the exercise content, addressing such issues as cue placement, (e.g., discussing the position of scouts in a Duffer’s Drift exercise) all based on observing students’ actions/learning during the just-completed exercise (Figure G-6).

For example, I observed a hot wash of the Duffer’s Drift exercise. Participants debated modifications to the situations presented to better emphasize the VDD aspects of leadership discussed in FM 3.0. The result created excellent instructor “buy in” in a high-performance organization striving to improve its product. Instructors were curious about instructional technology alternatives and willing to use innovative learning techniques. SCP clearly is fertile ground for advanced individual and team learning.





**Figure G-6. Instructor/coach AAR of Duffers Drift**

## C. Continuing challenges

### 1. Quality control

The interactors—CUBIC employees who actually operate JANUS—were used inconsistently. In some cases, the student would point at the JANUS computer screen and indicate where he wanted forces to be moved. In other cases, the interactor paused until the student gave an appropriate Fragmentary Order. In several cases, the student was put in a position where he could not see the JANUS screen; the interactor then gave the student information like he might receive as a spot report. Teaching practices varied considerably between instructor/coach, interactor, and student. We need to determine “best practice” in this area and it then needs to be executed consistently, but that is challenging when all instructors are teaching and there is no reserve to spot-check quality control.

### 2. Resource Requirements

Currently there are too few instructor/coaches in TCDC/BCDC to consistently permit one instructor to coach the same two or three students throughout the course

and understand individual strengths and weakness, and then develop and modify content accordingly. For this reason, the quality of instruction suffered. Sufficient instructors are authorized, but not assigned. This instructor-student relationship is particularly important in “Duffer’s Drift” and the Commander’s Reaction Course exercises. Both are amenable to skillful modification of the instructor’s interaction with the student. After 10–15 scenario iterations, the instructor can really learn a student’s strengths and weaknesses, thereby enabling him to correct the weaknesses.

I was impressed by the support that the CUBIC interactors provide to the course. There was an excellent daily hot wash between course director and interactors discussing details of the day’s operation. Much of an interactor’s effectiveness is really based on his knowledge of the tactical situation and his willingness to “play the game,” not as a JANUS operator but as a subordinate unit commander. The interactors need to be more than merely JANUS operators to take full advantage of the learning opportunities.

Training and sustaining the instructor team (instructor/coach and interactor) is an important resource issue seriously affecting the quality of SCP “best practices.” Sufficient numbers of teams need to be sustained to permit a favorable instructor student ratio. One-to-one is best, though I believe two students per instructor/interactor team is doable with little loss in effectiveness. The “down” student can be preparing for the next fight or reflecting on the past exercise after the instructor/coach AAR. I suspect that three or more students per instructor/coach would seriously degrade learning effectiveness.

These observations appear equally relevant for the design and conduct of ALL or LTXs but less applicable to BCRs. The conduct of the BCR will tend to follow the quality and the content of the particular AAR that precedes the BCR.

### **3. Better Assessment**

There appears to be little assessment of effectiveness or efficiency of the commander learning achieved in SCP. Though there are satisfactory end-of-course critiques for both TCDC and BCDC, they are just that: necessary reviews by the students of courses just conducted. It appears that the comments are incorporated quickly as the courses evolve and improve. Commander “word of mouth” comment is clearly favorable.

More assessment seems appropriate, particularly coordinated with commanders once they arrive in their units. Both individual and commander team learning need to be assessed with timely feedback to institution and unit. Measures of performance could include conservation of leader time in units as commander team learning is conducted (efficiency); reinforcement of prior learning in the institution (effectiveness); or identification of the need for either individual or team relearning to sustain expected levels of proficiency in both science and art.

#### **4. Preparatory study of tactical/technical control processes**

While the abiding purpose of TCDC/BCDC is to prepare commanders, the intensity of the learning experience depends on commanders knowing enough about the MDMP taught previously in CGSOC, CAS3, OACs, and traditional Leader Training Programs (LTPs) at CTCs. It is difficult to “walk” or “run” without basic knowledge of the MDMP “crawl” processes. It is incumbent on the student to prepare himself. Whether or not some form of diagnostic assessment is appropriate, it seems necessary to provide the commander-designee with appropriate MDMP instructional material. Fortunately, this appears to exist in the Force XXI Training Program. This material needs a prescriptive review for all designated commanders before they attend SCP.

#### **5. Incorporating Visualize, Describe, Detect (VDD) into TCDC**

The preeminent “best practice” challenge of SCP is the need to translate the successful learning performance of TCDC and BCDC teaching VDD as currently applied to BCT commanders into a compressed TCDC experience for all officers going into brigade, group or battalion command. This is achievable given the innovative exercises introduced in BCDC. These exercises can be exported by drawing on evolving participatory media enabled by IT/AKO and KM/BCKS.

#### **6. Learning VDD TTP “off the plan”**

BCDC has done an excellent job shifting the focus of commander instruction to MDMP execution contrasted to planning or preparation. Within execution, however, the tendency is to develop VDD in operations that generally evolve according to the

plan; that is, as branches or sequels of the basic plan developed by the MDMP. Much more work needs to be done to create similar commander capabilities “off the plan,” when unanticipated change (good or bad) occurs and new commander “team VDD” are required. This is exactly the issue in design and execution of ALL exercises.

## **7. Export to units**

SCP’s most significant payoff is likely to be the improved performance of commander teams in units. SCP can show the what, how, and why of executing highly competent battle command by leader teams in an institutional framework, but the bottom line will be how readily the institutional content can be used in the unit environment. It seems probable that advancing computer gaming state-of-the-art will produce a simulation at least as good as JANUS.

SCP course content needs to be designed so that commander teams can be effectively and satisfactorily prepared in the unit domain without the instructor/coach and interactor team now required. Modifying vignettes and cues to local METT-TC should be simple and doable in the unit. The instructor/coach skills evident in SCP will be difficult to replicate, but simple “tips for the trainer” could support local capability as the commander will have seen “best practice” while attending SCP. IT/KM should support export of these “best practices” to operating force units.

Interactor support from a local Battle Simulation Center supporting the commander as he/she prepares the leader team would ensure SCP is well-implemented in the unit. A more likely situation, however, is a commander using a laptop simulation combined with the instructor/coach course notes from SCP (perhaps with “how to” guidance to modify to local unit METT-TC). To achieve this, TCDC/BCDC course design should enable as many of these distributed learning opportunities as possible, even if it means some degradation of content. As participatory media come on line to support previously-used structured, digitized training exercises such as those available in the CCTT, less and less interactor support should be required. The local CLT can establish ATs with appropriate CTC expertise to transfer “how to” knowledge.

## **8. Preparing all commanders in battle command**

Seminar 3 is a good attempt at addressing common content suitable for all commanders, but part of the problem is the difficulty translating brigade-and-below



mid-intensity at the NTC to universal battle command vignettes that the non-divisional brigade, group or battalion commander can use. It may be possible if a generic BCT is created for Seminar 3 attendees<sup>122</sup> which could be placed in a “follow and support” environment, and draw on experiences of the BCT being fought in seminars 1 and 2.

A better alternative might be to place the generic BCT into a stability and support operation environment, perhaps as part of a JTF. Vignettes and cues drawn from a stability and support operation scenario could be used in “Think Like a Commander” and “Duffers Drift” exercises. This same exercise content might be useful for units preparing for MRXs and other structured exercises included in the ARFORGEN Road to Deployment.

More work is required to make Seminar 3 an institutional leader learning “best practice.” The current division of scenario locales between Kansas and the NTC needs to be thought through.

## 9. The friction of war

It is easy to lose perspective of the “friction” of warfighting when you are sitting in a classroom using a simulation, however good it may be. BCDC addresses this well by conducting a military operations on urban terrain TEWT at Lawrence, Kansas, though it would be useful to provide a similar experience to all commanders in TCDC. This might be feasible if Seminar 3 were instructed in a stability and support operation scenario that would also draw on a TEWT to Lawrence. Here too, IT/KM participatory media should provide new learning opportunities for individual leaders and commander leader teams.

## 10. Sustaining leader team competence and cohesion

TCDC could address how to sustain team competence and cohesion in units. This is a problem for teaming newly assigned commanders, as well as for sustaining command team proficiency and rebuilding a team when there is individual commander turnover within the vertical or horizontal team.

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<sup>122</sup> A hypothetical composite BCT consisting of combat, combat support, and combat service support units which the student commanders would “command.”

## **D. Learning “best practice” Summary**

### **1. Establish a new “commander’s” perspective of MDMP**

Because TCDC effectively used common understanding of MDMP, students could quickly appreciate the difference between their individual use of the MDMP as a staff officer and using the same process as a commander. In the second TCDC exercise (Brigade deliberate defense), students had to complete major steps in MDMP (mission analysis, intent, guidance, CCIR) as commanders. This technique should be effective in other learning areas applied to the full range of offensive, defensive and stability operations.

### **2. Linking readings, simulation and understanding**

Both TCDC and BCDC effectively tied course readings to the warfighting outcomes presented in simulation in order to support all aspects of understanding the use of VDD by the commanders. The various media’s mutual support abilities not only accelerated the learning processes, but also seemed to motivate a surprisingly rapid student “buy-in” to the clearly different learning techniques applied in the course. It would be exceedingly helpful if this buy-in were transferred to individual or team learning, so that the students, now as commanders, could employ these learning techniques to prepare the leader teams in their units. Exporting exercises for leader team building in units could be a useful future evolution for SCP. Similar learning “best practices” have been applied recently by [CompanyCommand.army.mil](http://CompanyCommand.army.mil). SCP graduates—all serving Brigade and Battalion Commanders - understanding how this can be done—should support IT/KM introduction of participatory media.

### **3. Application of “Duffer’s Drift” exercises**

There is great potential in the “Duffer’s Drift” exercises both in institutions and units. Once the students understood the general scenario, they rapidly adapted to the new learning opportunity. It was surprisingly easy for the instructor/coaches to make simple modifications in the scenario cues to emphasize, and in turn, visualize, describe, and direct each cue to a desired degree. Students were quickly taken to an important tactical action to stimulate analysis, discussion with an instructor/coach, and then comprehension.

“Duffer’s Drift” was iterated four times in BCDC. By the third time, the students understood the learning process. Accelerating the presentation of new situations seems inevitable. Four iterations is only a start; five-to-ten iterations may permit even more effective, efficient understanding of the conceptual and doctrinal framework of VDD. Once the general scenarios are known and the methodology is understood, perhaps for both mid-intensity and stability operations, it may be possible to stimulate learning by simply presenting “flash cards” for new cues. Technically, there are no obstacles to doing this in groups or distributed via the Internet. The use of participatory media should be particularly effective. The Army has just scratched the surface of advanced commander and commander team learning with exercises such as “Duffers Drift.” The ALL should be the next step to adaptive leader learner team preparation.



**Figure G-7. The heart of BCDC: Instructor/coach and Student discuss what, how, and why after a fight**

#### 4. Creating student visualization abilities

One of the most difficult learning challenges of BCDC is creating a commander’s ability to visualize the fight, but several techniques were used quite effectively. As the instructor/coach worked with the student in a tactical context, he often used a

white board to talk through the flow of the battle. Analogies were used very effectively, e.g., comparing enemy avenues of approach to paths of flowing water. JANUS was used to represent the utility of a thoughtful commander's reconnaissance.

Because the “Duffer’s Drift” exercises are designed so that each vignette is nested in the preceding, students approached the tactical situation each time with a deeper appreciation of the likely flow of the fight (visualization). The instructor/coach encouraged this developing capability in frequent informal AARs (Figure G-7). Not only was the student commander developing the abilities to visualize, describe, and direct, but, he/she was also learning to similarly instruct and coach their subordinate commanders once in command of their units. This learning methodology seems perfectly applicable to distributed learning applied to Security, Stabilization, Transition and Reconstruction operations in grouped or distributed ARFORGEN Road to Deployment leader and leader team learning exercises.

## 5. Intensification of learning

The Commander’s Reaction Course—taught on the last day of BCDC when students fully understood the instructional methodologies—was the apogee of intensive commander learning. Students clearly understood both what was happening and how it was happening in terms of creating intensive learning situations. Three vignettes drawn from tactical scenarios taught earlier in the BCDC were used. Because the student was already familiar with the scenario and the instructor/coach, interactor learning methodology, the vignettes flowed rapidly, each lasting about an hour. Had more instructors been available, there could have easily been six-to-eight vignettes. These exercises hold great potential for “brown bag” learning in the unit environment or for export via IT/KM. The content could be readily converted into flash cards supporting intensive, interactive learning, or any other approach desired.

## E. Broader Implications

SCP’s “best practices” are exceptional. Because of the high-performance instructor team resident at SCP, these practices will continue to improve and should be observed by the advanced learning R&D community. Further, these “best practices” need to be exported to units through the “good offices” of former students (the chain of command in units). Each “graduate” should be treated as an ambassa-

dor/mentor of intensive leader learning in the units. To support this, selected exercises need to be created for leader team development at individual, unit, and institution levels. No leader (commander or staff leader) acts alone. IT/KM can accelerate application of these learning “best practices” across the Operating Force.

There is great merit in providing common commander team learning exercises, perhaps one for mid-intensity conflicts and one for stability operations. In each case, the ability to inject local METT-TC would be nice to have, and the ability to probe and then mature the commander’s VDD abilities by skillful use of content would be essential. The “Duffer’s Drift” exercises provide one way for commander team learning in a mid-intensity conflict, and “Think Like a Commander” may provide the best way for stability operations.

Whatever is developed should be applicable for Army units and JIIM organizations preparing to deploy. Leader team preparation “best practices” should provide effective learning precedents fully applicable to future distributed exercises.



## Appendix H: Duffer's Drift: Leader Learning Methodology as Adapted for School of Command Preparation

Reproduced below are extracts of tactical situations presented to individual combat brigade and battalion command designees in 2004. Students fight the same Movement to Contact for four iterations in JANUS under an instructor's tutelage (1:1 instructor:student). The instructor creates cues that help the student learn the lessons (in italics below) in situations two, three, and four. In this example, 11 lessons are developed. Instructors can vary an almost unlimited number of tactical cues to develop the SKA of adaptive commanders. In this case, the focus is on tactical awareness and flexibility.

This instructional design is applicable to individuals and CLTs drawing on scenarios involving offensive, defensive or stability operations. "Duffer's Drift" could be a prototype LTX adjustable to develop the SKA of team leadership. See Appendix J for applications.

### **Lesson 2A. Exercising Battle Command<sup>123</sup>**

#### **The Art of Battle Command**

#### **Task Force Movement to Contact**

##### **Situation 1**

...

**2. Mission.** 3d Brigade moves NLT 122100U JUN XX to occupy battle positions to deny NACSAR forces access to UN food distribution sites in order to prevent any disruption of stability operations; on order, attacks to fix and destroy NACSR forces south of the Avawatz Mountains.

#### **3. Execution.**

a. 3d Brigade Commander's Intent. 3d Brigade is protecting UN food distribution operations and UNPROFOR/FPN personnel. Critical tasks are reconnaissance; movement to battle positions from which to block further enemy movement; fix and attack to destroy the NACSR force with the full

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123 School of Command Preparation BCDC Instruction Advance Sheets, July 27, 2004.

combat power of the brigade. At end state, all the food distribution centers are protected and the NACSAR force is destroyed.

### **Duffer's Drift: The Dreams**

#### *Situation 2 (Lessons in Italics)*

**1. General Situation.** NACSAR forces continue to threaten food distribution sites vicinity Aziz Township, 40 km south. The brigade is still delayed 10-12 hours. *“Toward evening my head got worse, and its rhythmic throbbing seemed gradually to take a meaning, and hammered out the following lessons, the result of much pondering on my failure:”*

- (1) Find out what the enemy is doing in Central Corridor.*
- (2) Deploy scouts further in front of maneuver formations.*
- (3) Move volcanoes with company teams.*
- (4) Move some artillery with the task force formations.*

*“After these lessons had been dinned into my soul millions and millions of times, so that I could never forget them, a strange thing came to pass—there was a kaleidoscopic change—I had another dream”...*

**a. Situation 121200 June XX.** UN observer posts vicinity the demarcation line confirmed a NACSAR battalion moving south on the road to Aziz Township into the Avawatz Mountains—Aziz Township is a UN food stockpile and distribution site. *“I suddenly found myself dumped down at Duffer's Drift with the same orders as already detailed, and an equal detachment composed of entirely different men. As before, and on every occasion, I had ample stores of ammunition, and tools. My position was precisely similar to my former one, with this important exception—running through my brain were four lessons.”*

**b. Orders Extract.** (See original handout)

**2. Mission.** TF 1-14 moves at 131130 JUN XX and conducts a movement to contact to fix the NACSAR forces south of the Avawatz Mountain in order to protect the food distribution centers from disruption; on order, attack to destroy NACSR forces.



## Duffer's Drift: The Dreams

### Situation 3 (*Lessons in Italics*)

**1. General Situation.** NACSR forces continue to threaten food distribution sites vicinity Aziz Township, 40 km south. The brigade is still delayed 10-12 hours. *"Eventually the following lessons framed themselves in my head—some of them quite new, some of them supplementing those four I had already learnt"*<sup>124</sup>:

*(1) It's imperative to increase my battlefield awareness even further. I must find out what the enemy is doing in Central Corridor and deploy scouts through the depth of my area.*

*(2) Retain flexibility in my concept. Base my decision to transition between defense or offense on the enemy size and activity.*

*(3) Increase my flexibility by moving all the artillery with the task force.*

*(4) (Add your own lesson here)*

*"By the time the above lessons had been well burnt into my brain, beyond all chance of forgetfulness, a strange thing happened. I had a fresh dream."*<sup>125</sup>...

**a. Situation 121200 June XX.** UN observer posts vicinity the demarcation line confirmed a NACSR battalion moving south on the road to Aziz Township into the Avawatz Mountains—Aziz Township is a UN food stockpile and distribution site. *"I was at Duffer's Drift on a similar sunny afternoon and under precisely similar conditions, except that I now had eight lessons running through my mind."*<sup>126</sup>

**b. Orders Extract.** (See original hand out)

**2. Mission.** TF 1-14 moves at 131130 JUN XX and conducts a movement to contact to fix the NACSR forces south of the Avawatz Mountain in order to protect the food distribution centers from disruption; on order, attack to destroy NACSR forces.

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124 Swinton, E.D. *The Defense of Duffer's Drift*. Wayne, NJ: Avery Publishing Group Inc., 1986, p. 24.

125 Swinton, p. 26.

126 Swinton, p. 27.

## Duffer's Drift: The Dreams

### Situation 4 (*Lessons in Italics*)

**1. General Situation.** NACSAR forces continue to threaten food distribution sites vicinity Aziz Township, 40 km south. The brigade is still delayed 10-12 hours. *“During the day’s trek the following lessons slowly evolved themselves, and were stored in my mind in addition to those already learnt:”*

*(1) My battlefield awareness must identify the best terrain for an attack or a defense so I can fight for the terrain of my choosing and maintain a force orientation.*

*(2) Increase flexibility in my concept by establishing control measures throughout the area.*

*(3) (Add your own lesson here.)*

*“While chewing over these lessons learnt from bitter experience. I had yet another dream.”*

**a. Situation 121200 June XX.** UN observer posts vicinity the demarcation line confirmed a NACSAR battalion moving south on the road to Aziz Township into the Avawatz Mountains—Aziz Township is a UN food stockpile and distribution site. *“I again did find myself facing the same problem, this time with eleven lessons to guide me. I started off by sending our patrols as described in my last dream...”*

**b. Orders Extract.** (See original hand out)

**2. Mission.** TF 1-14 moves at 131130 JUN XX and conducts a movement to contact to fix the NACSAR forces south of the Avawatz Mountain in order to protect the food distribution centers from disruption; on order, attack to destroy NACSAR forces.”

# Appendix I: Instructor Guide for Interim BCT Nested Leader Team Training

Below is an instructor guide representative of 'Tips for the Trainer' provided for each of the tens of vignettes prepared to support leader team learning for the Interim BCTs at Ft Lewis preceding the fielding of the Stryker BCTs. Note the instructions for design of the learning situation, the Key Talking Points, and the requirements for the discussion groups (battalion and company commanders).

Everything below could now be conducted virtually, drawing on current IT and KM with or without drawing on the support of participatory media. A similar process could be developed for LTXs or whatever methodology is determined best for developing the shared SKA characteristics of HP CLTs – shared trust, shared vision, shared competence and shared confidence.

Vignette Title: Secure A Contested Area

Echelon: Brigade

Leader Skills: Tactical

Target Audience: Battalion and Company Level Leaders

Methodology: Seminar/Small-Group Discussion

## A. Vignette Instructor Guide

### 1. References

- FM 22-100, Army Leadership, Aug '99, Ch. 4, SUBJ: Direct Leadership Skills, pp. 4-47 to 4-48, Tactical.
- FM 71-3, The Armored and Mechanized Infantry Brigade, January 1996.
- Interim BCT O & O, 30 June, 2000 (Final)
- Interim BCT Standard Operating Procedures
- Interim BCT Tactical References

**2. Purpose.** The purpose of this vignette is to address those tactical skills required of Interim BCT leaders to secure a contested area in a complex peace keeping or peace enforcement environment.

### 3. Instructions For Leader

- a. This vignette is designed to assist in the development of sound judgment, understanding decision parameters of the higher commander, using creative thinking in problem solving and recognizing the underlying short- and long-term issues that may impact a unit in this scenario. Small and large group discussions should develop innovative ideas and concepts to address the “non-standard” and/or “non-doctrinal” situations surrounding the situation presented in this vignette.
- b. Prior to conducting this training, familiarize yourself with the contents of this vignette and the listed references. As appropriate, provide your training groups copies of excerpts from those references that you feel are especially relevant to your particular training objectives. As a minimum, have at least one copy of all appropriate references at your training location. You will also need to provide soldiers copies of the training support material contained in the annexes accompanying this vignette.
- c. Determine the training support materials you will need for your training, such as butcher paper, magic markers, overhead projectors, etc., and ensure that all support materials are available at the training location.
- d. Explain the purpose of the vignette and provide copies of Annex A (Soldier Support Material), the reference list and/or appropriate excerpts to your audience. Using an overhead projector, butcher paper, or chalkboard, provide the scenario to your audience. Ensure that you provide them copies of appropriate supporting materials or that those materials are available for them to view. Read the first requirement to your audience, clearly stating the expected outcome(s) of their small group discussions. Provide the groups with start and end times for the requirement (can be adjusted if required). Points designed to generate discussion on this topic are provided in the requirement paragraph. The instructor has the option of either assigning selected points to specific groups, picking specific points for each group to address, or having each group address all discussion points (time available may be a factor). Concluding large group discussions should highlight innovative concepts and/or strategies to properly address the issues presented by this vignette. This is an excellent opportunity for junior leaders to address leader issues one or two echelons above their positions.

e. Divide your training audience into small groups of leaders of equal rank or by positions. Each group should discuss issues surrounding the situation presented in this vignette. In some cases, identification of 2d and 3rd level effects is appropriate. It may be appropriate to appoint an individual within each group to be responsible for guiding the group through the discussion points and analysis of the situation presented by the vignette. (NOTE: this is a suggestion, NOT a requirement)

f. After an appropriate time, reconvene into one large group and have a representative of each small group present its concept or approach for resolving the issue highlighted by the vignette. Discuss the pros and cons of each group's concept. Concluding large group discussions should highlight the leader challenges embedded in this vignette and the dynamics of developing new and innovative solutions. The Interim BCT leader may use these discussions to enhance subordinates' understanding of his leadership style and preferences.

g. Key talking points. These talking points are provided to the instructor to supplement ideas and discussion points addressed by the small groups related to issues embedded within this vignette.

- Discuss and analyze the tactical concepts that the groups developed and evaluate the support requirements of each from the brigade-level perspective.
- What key facilities and locations must be secured for mission accomplishment and what additional support is needed for transportation from the theater and host country?
- What asymmetrical warfare considerations will affect mission execution?
- Is each concept suitable, feasible, acceptable, distinguishable, and complete?
- What do we want to do, "shape" the battlespace or set conditions for decisive operations?
- How do we secure the town using precise means?
- What elements of the Interim BCT organization best support this mission? Least support the mission?
- How will we control deep, close (security and reserve), and rear integration of fires: task, target, effect, and purpose, anticipated decision points with related CCIR?
- What control measures will be required to provide command and control of aircraft?

- What do we really know about this situation? Where should we go to get more information?
- What do we need to know about this situation to successfully perform this task?
- Have we used all the assets available to us to support this task?
- What are some critical timing issues that must be addressed?

## **Annex A: Soldier Support Material**

### **1. Scenario (See Annex B: Warning Order and Annex C: Operations Overlay)**

Today is D+2 and the 1st Interim BCT is located vicinity Skopje, Macedonia airfield. The Supreme Allied Commander Europe and the Joint Forces Land Component Command (JFLCC) Commander are concerned with the increased movement of troops along the MONTENEGRIN border with KOSOVO and with paramilitary attacks around the city of TALINOVACKO POLJE. The entire Balkan region has recently erupted into civil unrest because of paramilitary attacks against civilians. The roads heading south into MACEDONIA are clogged with 540,000 Albanian refugees on tractors with their entire families. The 1<sup>st</sup> Interim BCT is presently in assembly areas around the airfield. Previous orders were to prepare for movement to defensive positions north of PRISTINA, but the 1st Interim BCT has just received a warning order to move immediately to secure the town of TALINOVACKO POLJE. The brigade must be prepared to establish control of the town and destroy the paramilitary threat within 24 hours. The JFLCC Commander gave the brigade this mission at H+48 hours (D+2). The JFLCC Commander is en-route to the brigade command post and is requesting a brief-back on your concept and support requirements.

### **2. Requirement**

In your small groups, identify the key tactical issues and requirements surrounding this mission and develop a sketch of your concept with which to brief the JFLCC Commander. Be prepared to re-convene back into the large group to present your solution and/or approach and discuss the pros and cons of each group's approach. Some issues that each discussion group should address include, but are not limited to, the following:

- a. What are key implied missions for the brigade?

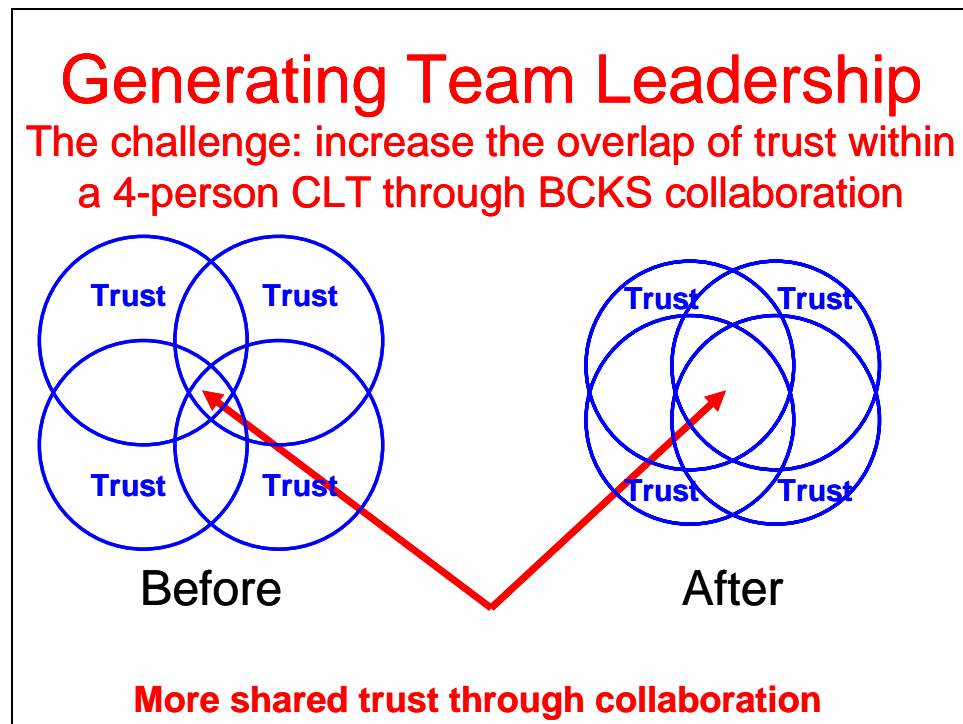
- b. What is the intent of the higher commander, secure the town or stop the attacks?
- c. What asymmetrical warfare considerations will affect mission execution?
- d. How much time will be required to issue the order for the revised mission and how much time will battalions, companies and platoons have to adjust their own plans?
- e. How will the brigade maneuver and what type of tactical formation should it use?
- f. How should the approximate 24 hours available for planning and execution be used?
- g. What lethal or non-lethal effects would be feasible for use in this mission?
- h. How would the Interim BCT need to task organize to fulfill mission requirements?
- i. What additional support will the Interim BCT require?
- j. How can information operations be used to support this mission?
- k. What rules of engagement would offer the most flexibility? Be the most restrictive?





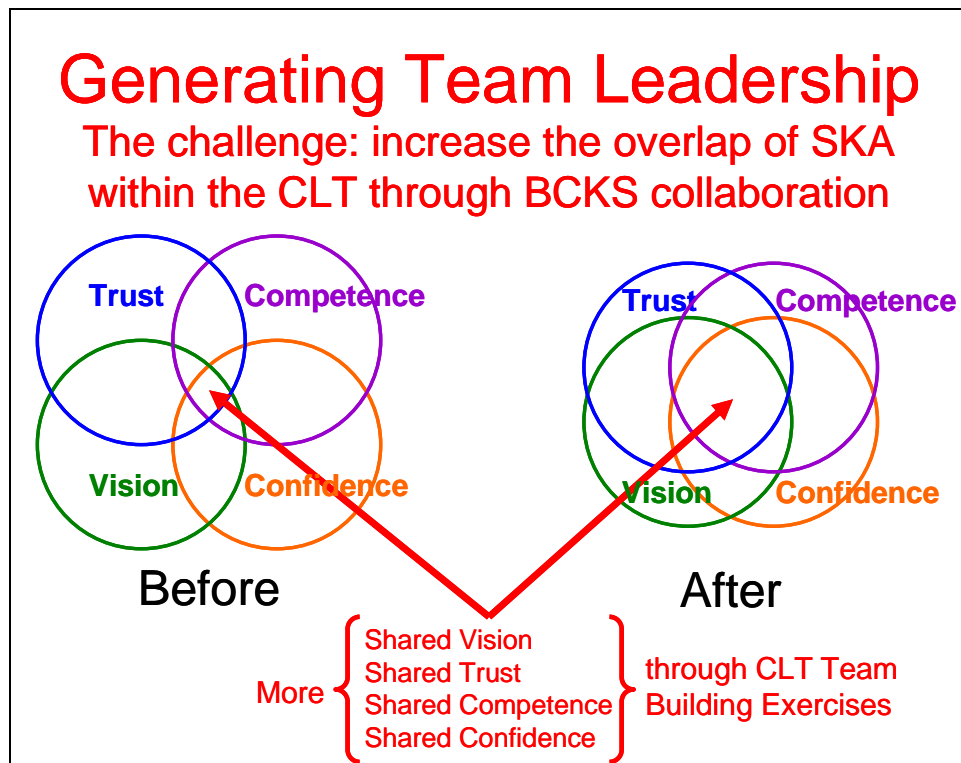
## Appendix J: SKA of Team Leadership

Team leadership exists to the extent that there are shared SKA of trust, vision, competence, and confidence within the CLT. Each member of the CLT shares these four SKA with each other member. Figure J-1 shows what happens when shared trust is increased.



**Figure J-1. Generating team leadership by increasing trust**

Figure J-2 shows what happens when all four SKA are increased and shared within the CLT.

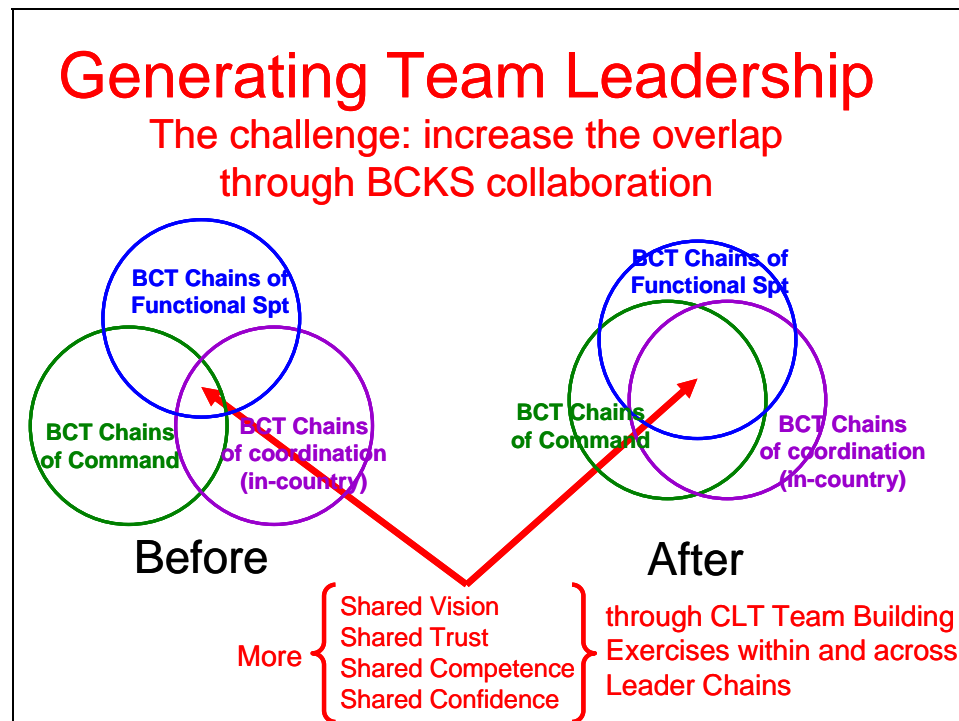


**Figure J-2. Generating team leadership by increasing all SKA**

Finally, Figure J-3 illustrates what can happen when you increase sharing SKA across multiple CLTs in a chain of command, chain of coordination or chain of functional support.

Each individual leader and hierarchical or peer CLT (chain of command, chain of functional support, chain of coordination or staff team) possesses unique vision, trust, competence, and confidence. The extent to which these SKA are shared by the team members affects how well the team will execute the CLT vision. The challenge is sharing these SKA across existing teams of leaders, across various hierarchical chains of command or functional support or peer staff teams (see Figure J-3).

Sharing is not open-ended, but focused on the explicit established mission assigned to the team and nested in a broader vision or purpose. The expectation is that the overlapping areas will expand to include the explicit and implicit tasks associated with the broader vision, to include expected and unexpected branches and sequels. They will also expand as the CLT becomes more high-performing.



**Figure J-3. Generating team leadership by sharing across multiple CLTs**

A shared general mission and the over-arching professional values of America's Army will provide some natural overlap of vision, trust, competence, and confidence in any Army CLT. Trust is most important because it forms the foundation of sharing and collaboration. Trust is solidly grounded in the shared Army values of Loyalty, Duty, Honor, and Integrity. The Soldier's Creed "I will never leave a fallen comrade" epitomizes mutual trust. With trust, the other SKA come more easily. So the challenge of developing high performance is to create intensive collaboration, which then generates the overlap of shared SKA—shared first between CLT members and then across various CLTs within the unit or organization.<sup>127</sup>

This may seem like a complex process, drawing on collaboration enabled by IT and KM to develop necessary SKA through competency-based learning, but it is no more complex than task-based training requirements. Today, it is second nature for a Soldier to seek explicit tasks to train to standard, if possible, drawing on training

<sup>127</sup> The presence of strong, shared values is what makes IT and KM so supportive of America's Army. It is the absence of these basic SKA that makes CLT creation in JIIM organizations so challenging for COIN. Appendix K has more on generating shared SKA in JIIM organizations.

structured by the CTC paradigm of simulation, OC, opposing force, IS, and AAR.<sup>128</sup> With the Army at war, it is also second nature for an experienced Soldier to seek his or her teammates' full and complete trust. Strong Army values combined with the shared Soldier Creed learned in initial entry training ensure a broad, shared base for trust in those areas related to accomplishing the mission.

This is not shared trust for every aspect of living or soldiering; it is for those who support successful mission execution. There is no sense in CLT "voting" on accepting or changing missions. An order is an order. In a disciplined force, the CLT response is execution. Consciously or unconsciously, each Soldier ensures that teammates are focused on the same mission. Mission brief-backs from one-to-two echelons down are routine, as is the practice of restating the mission to ensure that tasks and purpose are understood. These practices come from recognizing that shared knowledge is crucial to mission execution.

Are we proficient in important individual and collective tasks? Similarly there is a competence check—do I, do we all, have the competencies necessary to accomplish the tasks assigned? In a task-based Army, disciplined to perform to standard, accustomed to competency-based promotion and other rewards, shared competency in those tasks required to be performed for successful mission performance is a basic, routine expectation.

Finally, are we confident we can accomplish what is expected? If not, it is tough for the average CLT to be inspired to exceptional success, whatever the task. And can the shared SKA of team leadership be learned by both physically grouped CLTs and virtual CLTs brought together by combinations of IT and KM?

The context of shared SKA here and as presented in the 1-41 Mech scenario (Appendix E) is on operating forces at the tactical level, essentially BCT and below. The CLTs are focused on explicit combat requirements. In that context, assessment measures to determine the degree of shared SKA of team leadership can be related directly to the effectiveness of various programs or actions that are available to increase SKA sharing. Due to the tactical orientation, measurement can draw on assessment practices such as the AAR, which is grounded in training to task, condition, stan-

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128 While the focus here is on the SKA associated with FM 6-22, *Army Leadership*; FM 7-0 *Training the Force*; FM 7-1 *Battle Focused Training*; and FM 6-0 *Mission Command* must also support HP CLT development—very much a doctrine and TTP team effort.

dard, and other well-documented performance measures. For example, the mission “rock drill” described below as a tool to increase shared trust is a proven, well-institutionalized process with assessment measures developed over years of CTC rotations. Each of the actions triggers assessment measures. These measures should relate not just to generating SKA, but also to the effectiveness of IT/AKO and KM/BCKS in developing HP CLT that are either together on the ground or as virtual CLTs.

The accelerating capabilities of AKO and BCKS appear to ensure global supportability by IT and KM. SPFs and KNs proliferate. ATs function routinely more and more.<sup>129</sup> The ability to transfer any form of data or information, unclassified or secure, is expanding to support intensive collaboration that generates shared SKA. The online game *America’s Army* is a proven success. Almost any designated learning strategy or program—ALL, LTX, BCR or eTDG—appears supportable by exploiting some form of tactical engagement simulation supported in a local Battle Simulation Center or online.<sup>130</sup>

## A. Skills, Knowledge & Attitudes

In each SKA case below, there are four aspects: (1) how to develop the shared SKA in general; (2) how to increase the degree of sharing, whatever it may be initially; (3) how to measure the improvement in SKA sharing that occurs as high performance is sought; and (4) how to accomplish SKA sharing for CLTs grouped either physically or virtually, or in some combination of the two.

### 1. Shared Trust

In a mission “rock drill,” leaders talk through various “what ifs” associated with a specific mission assigned at a CTC or developed within the unit. The leaders present either unexpected success or failure to engender knowledge and understanding of how the unit will react to the unexpected. As team members begin to understand that shared expectation becomes agreed action, shared trust develops.

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129 As intensive collaboration generates shared SKA that are essential to HP CLTs, so do the mission knowledge and understanding that are characteristic of KM—fully appropriate to a BCKS. In fact, for the future, it seems appropriate to infer that Battle Command = IT x KM; KM will not only add to IT, but multiply it.

130 For an excellent summary of online gaming, present and future, see Chris Suellentrop “Playing With Our Minds” *Wilson Quarterly Summer*, 2006, pp. 14–21.

To improve shared trust, increase the uncertainty, complexity or ambiguity of the situations presented and draw out each member to indicate his/her approach to resolving the now-more complex issue. Facilitate the discussion to develop specific responses/solutions that are clearly acceptable to all. As these common solutions develop, use each in a common context to push for a broader range of unanimous agreement by “what if, what then” discussions that expand the initial agreed-upon solution.

The MOP is the degree of increase in shared agreement. That increased range of agreed action, subsequently reflected in actual decisions, is a measure of expanded trust. Specific assessment quantification can be developed using common survey instruments developed by ARI or similar support.

The same rationale and sequence of actions applies to each of the alternatives suggested below to increase shared trust among individuals within the CLT and between CLTs.

To address increasingly difficult mission situations where leader teams are required to develop shared solutions, develop ALL exercises designed for the CLT. Through discussion, team members develop solutions and a shared understanding of the limits of response. It becomes clear what area of action all team members support, and through multiple iterations that address increasingly tougher mission situations, that area of common action expands. With it, trust between team members expands; and the team’s comfort zone is stretched.

To increase the freedom of action permitted to subordinates, broaden each CLT member’s range of action authorized without further direction or guidance regardless of whether there are effective communications links. This indirectly increases shared trust between CLTs and also among individual members of the CLT.

Alternatively, during structured tactical LTXs, cut communications at a critical moment and require team members to act without explicit direction, having to provide a vital decision or action that would contribute to the CLT’s success. At the end of the exercise, conduct an AAR/BCR and address shared trust within the CLT or between CLTs. Structure the AAR/BCR to discuss shared trust— its presence or absence, as well as examples of each and their importance to the tactical outcome. Design the situations and cues to stress shared trust within the hierarchical or peer CLT. Measures can be described (or prescribed) for OC or mentor use in the AAR or BCR.

Each of the above exercises can be applied within tactical units as well as organizations by drawing on Soldiers' familiarity with tactical applications and then translating those trust development processes to organizational issues. This is routinely done now with Generating Forces' campaign plans and use of operation order formats for non-tactical purposes. These exercises can also be shaped within current training exercises supported by existing virtual and constructive simulation at various home station battle simulation centers or exported from CTCs with existing IT/KM.<sup>131</sup> Measures now are commonly built into "Tips for the Trainer."

## B. Shared Vision

At the tactical level, BCT and below, shared vision can be expressed as the unit mission. At higher levels, distinctions can be made between mission and vision. For example, the mission is a formal statement included in an operation order; it is wholly directive in nature. A vision can be much less formal and may vary greatly during the period covered—hours, days, weeks, months. The level of detail and direction can vary greatly. Army CLTs (chains of command) can practice mission command "...subordinate leaders at all echelons exercising disciplined initiative within the commander's intent" or detail command "...imposing order and certainty on the battlefield."<sup>132</sup> There are notable differences in characteristics and the processes of execution, yet there is a time and circumstance for each.

Whether mission or vision, the shared SKA issue is "what are we—the CLT— assembled to do? To what extent do we all agree on what the mission or vision is?"

Developing a shared vision through open discussion within the CLT or between CLTs can be done in two ways. In the first approach begin by asking what are the specific expressed tasks? What are the implied tasks? What are the requirements associated with the implied tasks? Develop areas of agreement on requirements of implied tasks and expand those areas. From there, develop a shared restatement of the mission or vision. To this point, the process is similar to that of a commander's operation order brief-back to his or her senior commander. This process is fully understood and supported in the Army Training System.

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<sup>131</sup> An excellent example of structuring an exercise is in Appendix I.

<sup>132</sup> FM 6-0 Mission Command pp. 1–16,17.

Now shift from mission in a tactical chain of command to a statement of vision between separate commands within the Army, perhaps collocated on one large military post. Where there is agreement on expressed or several implied tasks, execute them to get started, agreeing that disagreements will be revisited as the team proceeds.

If there are clear disagreements as the team discusses implied tasks, make a list of the details of each disagreement and then ask what must be done or agreed to in order to reconcile these differences? At this point, multiple concerned chains of command or chains of functional support can be informed of sticking points to be resolved and for endorsement of those tasks already being executed.

A second approach to develop a shared vision could be to address final versus intermediate objectives rather than expressed versus implied tasks. What is the vision's final objective? Then, what are the intermediate objectives? Where there is clear agreement among all CLT members, break the larger mission or vision into smaller tasks. Establish a common denominator of consensus that can then be expanded by "what if" and "what then" issues presented by the discussion leader.

Both approaches have been addressed well for years by various combinations of negotiating theory and situational role player practice in a JIIM context going back to CTC training for missions in Bosnia, Afghanistan and Iraq. The preparation involved command and staff—a CLT—with various approaches for leader coaching or mentoring and was highly effective. Similar exercises are envisaged for unit preparation on the ARFORGEN Road to Deployment—fully supported by IT/KM today for CLT members both physically grouped and linked in a virtual environment.

Develop MOP by observing the sharing process. As increasingly detailed discussion occurs and specific areas of initial agreement and disagreement become obvious as intensive collaboration generates a shared understanding of the mission.

## C. Shared Competence

The US Army is a competency-based force. Proficiency is well prescribed by task, condition, and standard, and fully supported by both training and personnel actions. Where new skills may be required in operations, the CTC training and learning system works and is fully institutionalized. It is now being effectively expanded to distributed, high-density troop locations as part of the Army Plan to train and equip Soldiers.



Shared competence means not only that the task competence required to realize the vision or mission is possessed by each team member, but also that the team is competent as a team. On a high performing team, each member is competent in the team tasks; not all tasks, just those required to realize the vision or accomplish the assigned mission.

Processes to assess competency and remedial programs to address inadequacies are fully understood across all leader levels. Uniform measures are understood and practiced. Appropriate exercises exist. IT and KM support shared competence. For the US Army, shared competence is a non-issue; however, in JIIM organizations it is a significant problem, as discussed in Appendix K.

## D. Shared Confidence

Confidence grows once a team has developed shared trust and is working together to execute an understood, agreed-upon vision or mission. Confidence engenders a “can do” approach resulting in routinely looking for better ways to accomplish tasks. Team members are self-assured, comfortable taking risks, creative in solving problems, share pride in their accomplishments, and work together to continue to win. The whole (CLT performance) is greater than the sum of its parts (CLT member performance).

Confidence best comes from success. If possible, define the vision or mission so that success is practically ensured. Focus initially on the easy, the certain, so that the chemistry of shared confidence can begin within the CLT. If success is avoiding failure, then shape modest expectations to avoid failure.

Sufficient exercises exist to help shape the learning experience and stimulate success. ALL or various eTDGs can be fine-tuned to lesser degrees of difficulty. Missions can be narrowed and/or resources (time, combat multipliers) increased so success is more likely. If the team is unsuccessful, make the challenge easier and then increase the difficulty as the team’s performance improves.

Measures are primarily subjective—the look in the eye, confident responses to questions, and general certainty of the CLT’s response within the scope of its responsibilities— but survey instruments can also measure shared confidence.

## E. Adaptive Use of IT/KM Tools

The path from theory to practice has yet to be fully traveled for establishing and drawing on best practices for generating shared SKA across various combinations of virtual and grouped CLTs. The observations that follow suggest directions for needed research.

It is easiest to develop intensive collaboration among physically grouped individual members of a CLT. They are in the same environment and influenced by reacting as a group to stimuli (LTX etc) presented to each. The full reaction, the “body language”, is evident as the various team leadership development techniques described above occur. Consensus as to the pace of SKA development and subsequent development actions can follow. Cultural empathy is supported as all of the senses of social interaction are shared. This is the highly successful standard environment of the CTCs.

Next easiest would seem to be full virtual—all CLT members are separated as the team is developed. Connectivity can be synchronous (traditional VTCs, YouTube-like online video; or grouped Instant Messaging (IM) responding to common LTX stimuli presented by PowerPoint slide); or asynchronous (responding to group-developed stimuli as in current BCKS practice, Companycommand.mil). The various combinations seem to work as they have been practiced in the evolving ARFORGEN Road to Deployment. Reach-back and reach forward draw on various combinations of virtual presentations, as do virtual Right-Seat Rides where the context is provided by the deployed part of the distributed CLT.

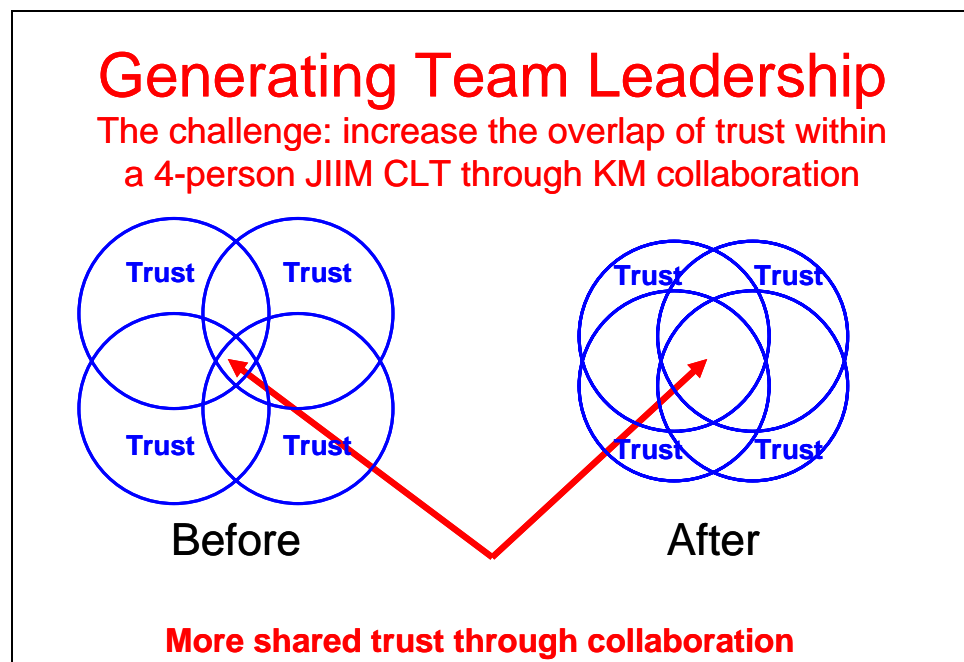
More problematic is the combination of grouped and virtual—a split CLT where some members interact across a table and others are in separate virtual locations. The key to this situation will be the power of the LTX in drawing each individual into the vignette or other content that is provided to stimulate SKA development. The more completely the situation presented can immerse each individual, the less relevant is the physical or virtual location of each. Their minds all move to common ground. This combination of grouped and virtual has been common practice for years in unit collective task training with the CCTT drawing on virtual simulation employed with various other components of the virtual tactical training infrastructure.

There is clearly work to be done but there are strong, relevant, ongoing IT/KM precedents.

## Appendix K: SKA of JIIM Team Leadership<sup>133</sup>

### A. Generating Team Leadership

JIIM team leadership exists to the extent that SKA of trust, vision, competence, and confidence shared within the CLT. Each member of the JIIM CLT shares these four SKA with every other member. Figure K-1 shows what happens when shared trust is increased.

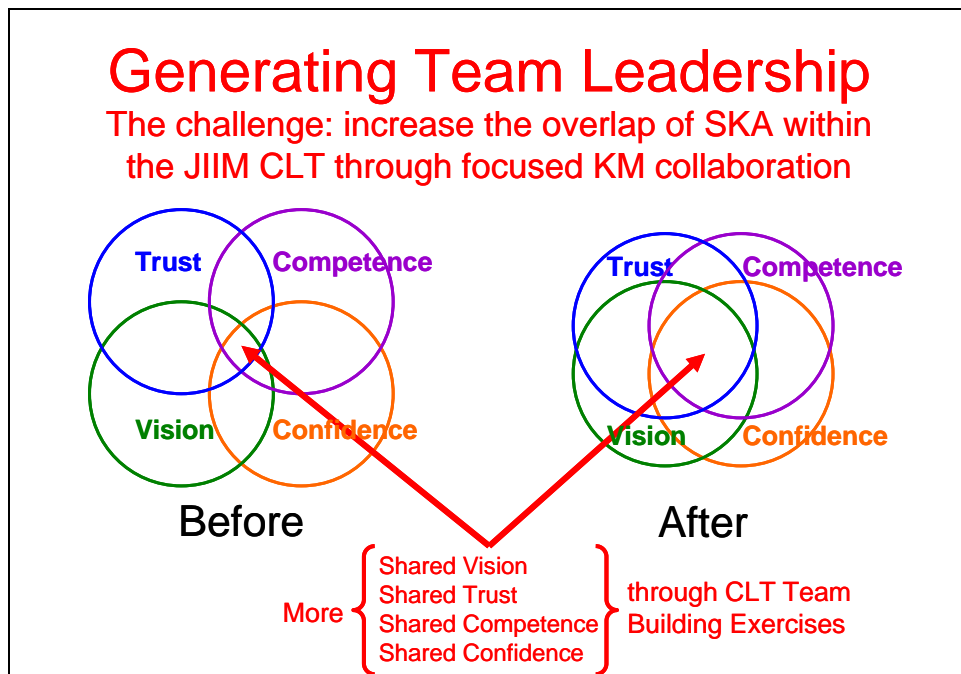


**Figure K-1. Generating team leadership by increasing trust**

Figure K-2 shows what happens when all four SKA are increased and shared within the JIIM CLT.

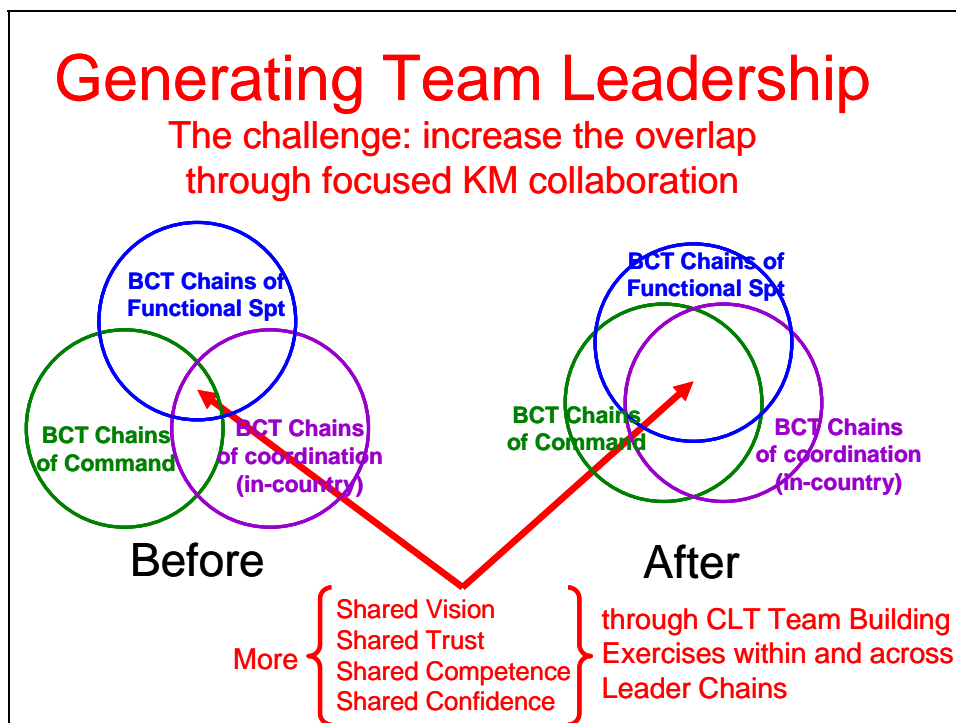
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<sup>133</sup> There is some deliberate duplication with Appendix J, so that this JIIM application can stand alone.



**Figure K-2. Generating team leadership by increasing all SKA**

Finally, Figure K-3 illustrates what can happen when you increase the sharing of SKA across multiple CLTs in a chain of command and JIIM chains of coordination.



**Figure K-3. Generating team leadership by sharing across multiple CLTs**

Each individual leader and hierarchical or peer CLT (JIIM chain of coordination, Service chain of command with internal chains of functional support and/or staff teams), possesses unique vision, trust, competence, and confidence. The extent to which these SKA are shared by all team members affects how well an individual CLT performs within and among the various CLTs. The challenge is sharing these SKA across existing teams of leaders, across various hierarchical chains of coordination or peer staff teams. Clearly there will be both chains of command and chains of functional support also operating, but the focus here is JIIM CLTs, primarily chains of coordination. As sharing grows, the promise of more JIIM HP CLTs generating larger groups of CLTs and high performing JIIM units and organizations also grows.

Sharing is not open-ended, but focused on the explicit established vision. The expectation is that the overlapping areas will expand to include the explicit and implicit tasks associated with the vision, to include expected and unexpected branches and sequels. They will also expand as the CLT becomes more high-performing.

KM practices provide extraordinary opportunities to increase SKA sharing. Today, those practices can be described as potential JIIM SPFs, JIIM KNs, and JIIM ATs, each enabled by global IT capabilities like AKO that is transitioning to DKO. The practices now maturing with the Army BCKS will eventually lead to some form of DKM that can be shaped to embed intensive grouped or virtual collaboration into various distributed JIIM-oriented enabling exercises. These in turn, can accelerate the sharing of SKA within CLTs.

Certainly, it is much easier to write about sharing SKA within a JIIM CLT than to actually do it. It is challenging enough within CLTs in a military Service and only gets harder in JIIM CLTs. For example, a shared general mission and the overarching professional values of the US Army will naturally create some common vision, trust, competence, and confidence in any Army CLT, but it may be difficult to create comparable shared values in a JIIM CLT.

Trust is most important because it forms the foundation of sharing and collaboration. Trust is solidly grounded in the shared Army values of Loyalty, Duty, Honor, and Integrity. The Soldier's Creed "I will never leave a fallen comrade" epitomizes mutual trust. With trust, the other SKA come more easily. So the challenge of developing high performance is to create intensive collaboration across cul-

tures, which then generates the overlap of shared SKA—shared first between CLT members and then across various CLTs within the JIIM unit or organization.

This may seem like a complex process, drawing as it does on collaboration enabled by IT and KM to develop necessary SKA through competency-based learning, but it is no more complex than task-based training requirements.

Finally, are we confident we can accomplish what is expected? If not, it is tough for the average CLT to be inspired to exceptional success, whatever the task. And can the shared SKA of team leadership be able to be learned by both physically grouped CLTs and virtual CLTs brought together by combinations of IT and KM?

JIIM CLTs can range from the very good – smooth-running teams of individuals accustomed to working together, becoming friends, representing essentially similar organizational interests – to the very bad – competitors, perhaps enemies forced together with each team member governed by senior direction at odds with each other. SKA sharing approaches zero. Reality will be somewhere in between, but we assume the worst, estimating that practices to respond to those cases will more easily apply.

## B. Hypothetical JIIM CLT

To suggest a JIIM CLT development example, I describe a hypothetical JIIM CLT as it forms and becomes a HP CLT.<sup>134</sup> The five team members are all field grade officers or equivalent and will be operating in one Combatant Command geographic area. Two members are from the United States: one is a member of the US Army (Major A), one is with the Drug Enforcement Administration (DEA) (Mr. B). The third member is a civilian drug enforcement official in charge of operations in that part of the Combatant Command AOR from another nation within the multinational coalition (Mr. C). Member four works for an international non-governmental organization (NGO) focused on counter-drug operations (Ms. D). The final team member is an officer in the national police of the local host nation (Col E).

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<sup>134</sup> This is one JIIM CLT example portrayed to represent the many, many others—both peer and hierarchical—that exist today. Pick one of yours and think through leader team SKA development similarly. Or apply this example as “a way” to build interagency trusted networks as discussed in the new FM 3-24, *Counterinsurgency* p. A-5.

**JIIM CLT Objective:** Drug interdiction. Develop and implement a common drug interdiction program for the local region.

The first meeting on the ground is scheduled for next week. Major A has proposed a tentative agenda for the meeting.

**Initial status of team leadership SKA:**

- Trust—There appears to be little. None of the five individuals have ever worked together before.
- Vision—It is uncertain whether any two individuals see the mission the same, either the announced purpose or implied tasks. Ms. D and Col E suspect the motives of the other three.
- Competence—Reputations vary. In general, no one seems to particularly respect anyone else, and, influenced by past experience, each considers the others to be marginally competent at best.
- Confidence—None apparent, although several individuals appear individually confident of some success.

Meager HP CLT prospects here. If quick results are required, hasty development is required. Therefore, focus on developing shared trust. Then as more time is available, apply deliberate HP CLT development practices to generate shared SKA. These practices would be supported by JIIM-oriented KM tools: SPFs, KNs, and ATs, all configured to support the JIIM CLT's objective.

Three near-simultaneous development paths will be pursued: (1) intensive application of IT/DKO and KM/DKM as DKO and DKM eventually appear, (2) a strong dose of cultural empathy, and (3) extensive use of HP CLT JIIM team leadership enablers. Significant by their absence for now are development of teamwork and team decision-making. These will come, likely as local agreed variants of the separate preparation of each of the five individuals; but, because of the enormous diversity among these five individuals here and likely in the vast majority of JIIM CLTs, the first imperative is to develop shared trust, then shared vision, shared competence and shared confidence—team leadership.

## **1. IT/KM DKO/DKM**

The US Army officer (Major A) moves quickly to become the de facto leader by setting up the first meeting. He basically understands KM and the importance of

developing shared team leadership. Both were subjects of discussion when he attended the Command and General Staff College, Ft. Leavenworth. Further, he was active in Leader Net and XO-S3 Net as a student, and was previously active in CompanyCommand.mil. In fact, as a member of the 25ID BCT that deployed to Afghanistan in 2005, he participated in the learning experiences provided to BCT CLTs by a team from Companycommand.mil, which linked leaders in Afghanistan with those at Schofield Barracks, Hawaii. He believed in the power of such grouped and virtual learning enabled by structured professional forums (SPF).

Major A knew he would be involved in counter-drug operations. He entered a counter-drug SPF sponsored by the Military Police School, Maneuver Support Center, Ft. Leonard Wood, Missouri. Ensuring he had both unclassified and classified access, he solicited and received excellent tips and lessons learned from several MPs familiar with the region. In fact, he was able to contact a predecessor who had worked counter-drug with the same Col E. They discussed his personality and apparent competence. Finally, he downloaded regional drug enforcement lessons learned and readings from the CALL website.

The CALL content alerted Major A to a SIPR drug KN for that region of the world. One helpful MP senior officer monitoring that KN introduced him to a DEA KN, a rally point for DEA support to DoD. He joined and established extended discussion threads with his DEA counterpart, Mr. B, his CLT partner-to-be in country. Major A asked for and received an issue reading list from Mr. B.

The DEA POC (Mr. B) knew the senior coalition counter drug representative for that area, a general officer equivalent. Major A introduced himself by SIPR email (address provided by Mr. B as he began to warm to Major A's competence and confidence) and explained his mission. There was no coalition SPF available, so the senior coalition leader put Major A in email contact with Mr. C, who had heard through the instant messaging grapevine that Major A was exceptionally competent. To begin developing a shared vision, Mr. C suggested readings and explained that Col E would be the local national "partner." He also provided a quick sketch of Col E and his past responses to counter-drug programs in his area. Mr. C also knew Ms. D, the counter drug NGO contact, and introduced Major A to her via unclassified email. It happened that Ms. D was a US civilian. As they shared general background information, Major A discovered that he and Ms. D went to the same college, though at dif-



ferent times. Some shared general trust began as Major A and Ms. D exchanged emails comparing college experiences.

At this point, Major A developed an agenda for the initial meeting by drawing on a drug enforcement classified SPF rally point to create an AT of Army, DEA, and coalition reps (Major A, Mr. B, and Mr. C). They discussed likely sticking points that might come up with Ms. D and Col E. Further, they agreed informally what the likely initial CLT actions should be and how they should prioritize them. Some shared vision began to grow.

By drawing on the KM capabilities before the first CLT meeting, there seemed to be about seventy percent agreement as to vision between Army, DEA, and coalition representatives. There appeared to be general agreement on what, how, and where the obstacles were likely to be, and how they could work through them. Team members were developing respect for each other and beginning to appreciate their competence. They were unsure about Ms. D's responses, but there was a hopeful tenor in her remarks; she clearly wanted to be on the team. Col E was known only to Mr. C, but the three Army, DEA, and coalition CLT members were confident they could anticipate his likely positions based on the counsel of those who had worked with him.

By now, Major A (Army), Mr. B (DEA), and Mr. C (coalition) were each running their own "trap lines" of associates in other SPFs and KNs they belonged to, gathering information and accumulating solid advice. Intensive peer and hierarchical collaboration had begun.

Simultaneously, the three individuals agreed to establish a regional rally point on the counter-drug SPF at the Military Police School and on the DEA KN for those with the requisite clearance. They then agreed to stand up an unclassified AT of all five JIIM CLT members on an SPF to be established for the coalition force.

Aggressive use of KM had generated substantial trust and agreed vision between three of the CLT members, and the competence of each of the three was evident to the other two. The odds of success of the JIIM CLT had increased.

## 2. Cultural Empathy

Now came the tough part, probably the most important area governing JIIM CLT success. It was not necessarily to generate high performance rapidly, but to build a genuine team that would pull together and agree on a common purpose. In

this drug enforcement example, the challenge was to develop the CLT and introduce the subjects in such way that Ms. D (NGO rep) and Col E (local leader) would support them and help develop a functioning JIIM CLT and achieve assigned missions.

The challenge is to make all CLT members aware of cultural similarities and differences within the CLT. Recognized as a central issue in the Long War, solid efforts have since been aimed at developing effective cross-cultural communication. One useful approach is to acknowledge that each member sees his or her behavior through a unique cultural lens. Cultural dimensions that can influence CLT command and control effectiveness (dimensions that vary from culture to culture) include power distance, risk assessment and uncertainty management, activity orientation, dialectical reasoning, and counterfactual thinking.<sup>135</sup> This is in addition to cultural differences associated with national origin, race, gender, religion, language, and family. A developing CLT of five members has to respect the effects of five combinations of cultures when developing shared SKA.

The range of variation in individual cultures commonplace in JIIM CLTs is practically infinite. KM enablers can be drawn upon for JIIM CLTs to “see each of us as others see us” in order to facilitate understanding. There are excellent examples of cultural preparation available for COIN operations, currently in Iraq and Afghanistan that can be made available for download and study.<sup>136</sup> Most important for all individuals engaged in generating and sustaining JIIM CLTs is the realization that each person has a different way of seeing things that must be acknowledged. Hence, understanding and empathy between members is essential. Creating and sustaining that empathy is crucial to developing trust, the critical SKA for a JIIM CLT.

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135 Klein, Helen Altman, Anna Pongonis and Gary Klein, “Cultural Barriers to Multinational C2 Decision Making,” paper, 2000 Command and Control Research and Technology Symposium, Naval Postgraduate School, Monterey, CA, Jun 26–28.

136 For an excellent summary of the cultural issue, see the RAND Seminar Presentation by LTC William Wunderle, “Through the Lens of Cultural Awareness: Planning Requirements in Wielding the Instruments of National Power,” Nov 17, 2005. LTC Wunderle is a middle-east foreign area officer serving as an Army Research Fellow at RAND Corp. Cultural awareness is an area of major focus in the evolving ARFORGEN Road to Deployment, particularly the COIN Seminar. “The COIN Seminar gives a workshop on the use of CALL and BCKS to learn the latest TTPs from theater to include multinational TTPs...workshops emphasize working with and information-sharing with NGOs, Interagency and International Organizations to integrate and orchestrate as best as possible the effects of civil military operations...” Email, Dennis Tighe Dir, CAC-T, Subject: ARFORGEN Research Support Oct 11, 2006.

Understanding the importance of cultural awareness, Major A went through CALL to the Army COIN facility at Ft. Leavenworth, to the Department of State and to SOCOM for “tips” for this particular drug enforcement issue in this region at this time. He also asked Mr. B and Mr. C for counsel. He was developing shared trust and competence. He was able to download from CALL and the COIN Center several individual eTDGs that taught characteristics of local culture. Finally, through the auspices of the NTC Operations Group, Major A established an AT with a CTC role-player from Col E’s nation and culture who then became a reach-back cultural advisor.

### 3. Use of JIIM Enablers<sup>137</sup>

Recalling his BCKS Leader Net XO-S3 experiences and an old friend currently serving there, Major A went to the NTC KN for quick response eTDGs, that he could use as ice-breakers, particularly to develop shared trust. He sought anything usable as a vehicle to bring out cultural differences relating to mission execution in that region. Then he went to the general CTC KN for LTXs developed for CTC from which he could draw vignettes to bring out drug coordination issues. Major A collaborating with Mr. B and Mr. C considered how they might use the locally modified LTX to form the basis of a “what if, what then” rock drill for their second CLT meeting. Their shared trust, competence and confidence were growing.

Major A was preparing himself in advance with enablers and likely reach-back coaches/mentors both from the CTC and the MP School. He encouraged Mr. B to do the same from the DEA. Major A was leveraging intensive collaboration and capitalizing on the KM tools and practices available. He had done a lot to build not only a JIIM CLT, but also, he hoped to generate a JIIM HP CLT.

#### **Translation to Team Leadership SKA**

In each SKA case below, there are four aspects: (1) how to develop the shared SKA in general; (2) how to increase the degree of sharing, whatever it may be initially; (3) how to measure the improvement in SKA sharing that occurs as high performance is sought; and (4) how to accomplish SKA sharing for CLTs grouped either physically or virtually or some combination of the two.

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<sup>137</sup> Enablers discussed below – Adaptive Leader Learner (ALL), electronic Tactical Decision Games (eTDG), Leader Team Exercises (LTX) and Battle Command Reviews (BCRs) - are discussed in depth pp. 35-49.

Using KM to “prep the terrain” as Major A did in the drug enforcement example resulted in the majority of the CLT members going to the first meeting with considerable shared SKA. The key was starting early to generate shared trust. Major A appears to have done that.

**Shared trust enablers.** Conduct a mission “rock drill” where leaders talk through various “what ifs” associated with a specific mission assigned or developed within the JIIM CLT. Present either unexpected success or failure to engender knowledge and understanding of how the CLT will react to the unexpected. As team members begin to comprehend that shared expectation becomes agreed action, shared trust develops.

To extend the drug enforcement example, draw on suggested LTXs provided in advance by reach-back to the CTC and MP school.

To improve shared trust, increase the uncertainty, complexity or ambiguity of the situations and draw out each CLT member to indicate his/her approach to resolving the now more complex issue. Let the “slowest” suggest change or follow cultural counsel and mentoring about how best to introduce complicating change.

In the drug operations example, it might be best to let the local leader, Col E, control the rate of introducing complicating change. Facilitate the discussion to develop specific responses/solutions clearly acceptable to the entire team. As these “lowest common denominator” solutions develop, use each in a common context to push for a broader range of unanimity by “what if, what then” discussions expanding the initial agreed upon solution.

The MOP is the degree of increase in shared agreement. That increased range of agreed action, subsequently reflected in actual decisions, is a measure of expanded trust. Specific assessments can be developed by using common cross-cultural survey instruments that can be prepared or modified by ARI or similar organizations.

The same rationale and sequence of actions applies in each of the alternatives suggested below to increase shared trust between individuals within the JIIM CLT and between JIIM CLTs.

To address increasingly difficult mission situations where the JIIM CLT is required to develop shared solutions, develop ALL exercises tailored for the team. Through discussion, team members develop solutions and a shared understanding of

the limits of response. It becomes clear what common areas all action team members support, and through multiple iterations that address increasingly tougher mission situations, that area of agreed action expands. With it, trust between team members expands and the team's comfort zone is stretched.

To increase the freedom of action permitted to subordinates, broaden each JIIM CLT member's range of action authorized without further direction or guidance, regardless of whether there are effective communications links. This indirectly increases shared trust between JIIM CLTs and also between individual members of the five-member JIIM CLT. In the drug enforcement example, this could best be done by the chain of command of Col E or the coalition chain of coordination.

Alternatively, during structured tactical LTXs, cut communications at a critical moment and require team members to act without explicit direction, having to provide a vital decision or action that would contribute to the JIIM CLT's success. At the end of the exercise, conduct an AAR/BCR and address shared trust within the team or between JIIM CLTs.

Structure the AAR/BCR to discuss shared trust, present or absent, as well as examples of each and their importance to the tactical outcome. Design the situations and cues to stress shared trust within the hierarchical or peer JIIM CLT. Measures can be described for OC or mentor use in either the AAR or BCR. For the drug enforcement example, the best mentor would be co-option of the senior local leader (Col E) followed by the coalition leader (Mr. C). Both need to buy in to increased trust through co-option.

**Shared vision enablers.** Whether mission or vision, the shared SKA issue is "what are we, the JIIM CLT (real, virtual, mixed) assembled to do? To what extent do we all agree on what the mission or vision is?"

Developing a shared vision through open discussion within the JIIM CLT or between CLTs can be done by asking, "What are the specific expressed tasks? What are the implied tasks? What are the requirements associated with the implied tasks?" Develop areas of agreement on requirements of implied tasks and expand those areas. From that, develop a shared restatement of the mission or vision.

Now shift to a statement of vision between various combinations of JIIM. Where there is agreement on expressed or implied tasks, execute them to get started, agreeing that disagreements will be revisited as the team proceeds. In the drug en-

forcement example, Major A appeared to have developed partial consensus on actions to be taken. The actions above should have smoked out both Col E and Ms. D.

If there are clear disagreements as the JIIM CLT discusses implied tasks, make a list of the details of each disagreement and then ask what has to be done to reconcile these differences? At this point, a negotiation process has begun, but it is a different process because all within the team know where there is agreement to be advantaged and where there are specifics of disagreement to be worked through. At this point, multiple concerned chains of command or chains of functional support can be informed of sticking points to be resolved and for endorsement of those tasks already being executed.

Another approach to develop a shared vision could be to address final versus intermediate objectives rather than expressed versus implied tasks. What is the vision's final objective? Then, what are the intermediate objectives? Where there is clear agreement among all CLT members, break the larger mission or vision into smaller tasks. Establish a common denominator of consensus that can then be expanded by "what if" and "what then" issues presented by the discussion leader. In the drug enforcement example, that discussion would be best led by Col E.

Both approaches above have been addressed well by various combinations of negotiating theory and situational role player practice for years in a JIIM context going back to CTC training for missions for unit preparation for service in Bosnia, Afghanistan and Iraq. The preparation involved command and staff—a CLT—with various approaches for leader coaching or mentoring and was highly effective. In the drug enforcement example, much had been resolved before the first meeting. Members either agreed or several knew where disagreement was likely, so they could develop a plan to increase agreement just as soon as they knew where Col E and Ms. D stood.

Develop MOP by observing the sharing process. As increasingly detailed discussion occurs, specific areas of initial disagreement become obvious as do areas of agreement that develop as the intensive collaboration generates a shared sense of mission.

**Shared competence enablers.** Shared competence means not only that the task competence required to realize the mission or vision is possessed by each team member, but also that the team is competent as a team. On a high performing team,

each member is competent in the team tasks; not all tasks, just those required to realize or accomplish the assigned vision or mission.

In JIIM CLTs, developing shared competencies can be challenging and tricky to correct so that no CLT member is compromised before his or her peers. In the drug enforcement example, Major A needed to develop personal competency first. He used KM SPFs and KNs extensively augmented by several ATs and SME coaching from the MP School and CTC. Mr. B was competent already. Mr. C was familiar with the local situation including Ms. D and Col E. It seems reasonable to assume that those three members were becoming more competent in drug enforcement operations.

Ideally, the LTX comments would have revealed Ms. D's and Col E's competency. Where there were deficiencies, Major A or Mr. B could draw on their various KNs and intensive collaboration to provide appropriate learning content. The challenge may be convincing Ms. D and Col. E during the LTX of what they don't know and suggesting they work together as a JIIM CLT to fix that. At this point, Major A might elect to talk the matter over with his role-player cultural coach at the CTC.

**Shared confidence enablers.** Confidence grows once a team has developed shared trust and is working together to execute an understood, agreed-upon vision. Confidence engenders a “can do” approach, resulting in routinely looking for better ways to accomplish tasks. Team members are self-assured, comfortable taking risks, creatively solving problems, sharing pride in their accomplishments, and working together to continue to win. The whole (JIIM CLT performance) is greater than the sum of its parts (JIIM CLT member performance).

Confidence best comes from success. If possible, define the mission or vision so that success is practically ensured. Focus initially on the easy, the certain, so that the chemistry of shared confidence can begin within the JIIM CLT. If success is avoiding failure, then shape modest expectations to avoid failure.

Sufficient exercises exist to help the learning experience and stimulate success. ALL or various eTDGs can be fine-tuned to lesser degrees of difficulty. Missions can be narrowed and/or resources (time, combat multipliers) increased so success is likely. If the team is unsuccessful, make the challenge easier and then increase the difficulty as the JIIM CLT's performance improves.

Measures are primarily subjective—the look in the eye, confident responses to questions, and general certainty of the CLT’s response within the scope of its responsibilities—but survey instruments can also measure shared confidence.

The drug enforcement CLT will blossom in response to the hard work, expert counsel, and enabling IT/KM tools with which they have been provided. In this drug enforcement example, SKA sharing has been achieved in a developing CLT that shifts between its members being physically together, virtually connected, or a combination of the two.

## C. Adaptive Use of IT and KM Tools

The path from theory to practice has yet to be fully traveled for establishing, then drawing on best practices for generating shared SKA across various combinations of virtual and grouped JIIM CLTs. Observations that follow suggest directions for needed research.

It is easiest to develop intensive collaboration among physically grouped individual members of a JIIM CLT. They are in the same environment and influenced by reacting as a group to stimuli (LTX, etc) presented to each. The full reaction, the “body language”, is evident as the various team leadership development techniques described above occur. Consensus as to the pace of SKA development and subsequent development actions can follow. Cultural empathy is supported as all of the senses of social interaction are shared. This is the highly successful standard environment of the CTCs.

Next easiest would seem to be full virtual—all JIIM CLT members in separate locations as the team is developed. Connectivity can be synchronous, (traditional VTCs, YouTube-like online video; or grouped Instant Messaging (IM) responding to common LTX stimuli presented by PowerPoint slide) or asynchronous (responding to group-developed stimuli as in current BCKS practice, [Companycommand.mil](http://Companycommand.mil)). The various combinations seem to work as they have been practiced in the evolving ARFORGEN Road to Deployment, including “in-country” JIIM collaboration. Reach-back and reach forward draw on various virtual combinations as do virtual Right-Seat Rides where the context is provided by the deployed part of the distributed CLT. But translating this general US understanding and acceptance of virtual participatory media that is characteristic of digital natives to multinational CLTs may



be difficult. Cell phones appear culturally accepted worldwide. Digital images may not be similarly accepted in some very traditional cultures.

Even more problematic is the combination of grouped and virtual—a split JIIM CLT where some members interact across a table and others are in separate virtual locations. The key to this situation will be the power of the LTX to draw each individual into the vignette or other content that is provided to stimulate SKA development. The more completely the situation presented can immerse each individual, the less relevant is the physical or virtual location, or the cultural bias against participatory media, of each. Their minds all move to common ground. This combination of grouped and virtual has been common practice for years in unit collective task training with the CCTT employed with various other components of the virtual tactical training infrastructure. JIIM experience is far less.

There is clearly work to be done but there are strong, relevant, ongoing IT and KM precedents.



## Appendix L: JRTC/CMTC OC Concerns About BCKS, June - July 2004

Following are issues raised and ensuing comments generated by OCs during two occurrences of free-ranging, one-hour small group discussions addressing future development of BCKS. The first was conducted June 2–3, 2004, at the Joint Readiness Training Center, Ft. Polk, Louisiana with four-to-eight OCs in each discussion. The second was conducted with 8 OCs each, July 20–21, 2004, at the Combat Maneuver Training Center (CMTC),<sup>138</sup> Hohenfels, Germany.

The comments and concerns are divided into Groups A and B. Group A reflects the concerns or observations from the JRTC meeting,<sup>139</sup> and Group B reflects those generated in response by the OCs at the CMTC meeting.<sup>140</sup> Preceding the discussion was a one-hour presentation<sup>141</sup> given to the JRTC OCs several days earlier. The OCs at the CMTC session received the discussion questions in advance.<sup>142</sup>

The content below represents the near-unanimous judgments of 83 serving OCs at the JRTC and CMTC plus six contractors with extensive JRTC experience.<sup>143</sup>

### A. OC Comments

- 1A.** Concern that BCKS may be another requirement dictated by higher—not accepted/used voluntarily based on content and user satisfaction.

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<sup>138</sup> CMTC now the Joint Multinational Readiness Center (JMRC).

<sup>139</sup> These comments came from OCs (LTC to SSG; C, CS, CSS) on June 2. They were then presented verbatim, for comment to a second group of 35 OCs (LTC to SGT C, CS, CSS) and several contractors including a former SMA) on June 3. The second group—outspoken Type A OCs all—had no differences with the results presented from the discussions with the first group.

<sup>140</sup> This group of comments reflect three two-hour discussions with three groups of eight OCs each (LTC to SSG, C, CS and CSS). The same questions were asked as at the JRTC and NTC (questions provided in advance). The CMTC OCs were read all of the detailed comments from the first JRTC meeting and were asked to comment.

<sup>141</sup> Leader Development Toolkit Development (Pstn Ldt Tlkt Dvmt.ppt 2 Jun); 1-42 SPF, KN etc.doc 29 May; and CTC BCKS Disc Issues 29 May.

<sup>142</sup> Discussion questions are on file at CIO/G6 DA and the S3 Operations Group at the JRTC, CMTC and NTC.

<sup>143</sup> The presentations were also given to 12 OCs at the NTC (representatives of each OC Team) with very limited feedback due to training requirements of the unit in rotation. There has been no subsequent NTC feedback (due to a continuing rotation followed by OC block leave).

**B.** CMTC accepted, no change. Don't make SPF participation "mandatory fun." There was consensus that in contrast to about all other areas in the Army, command interest in SPFs—such as CompanyCommand.army.mil—will be a fatal intervention. SPFs must be the voluntary, spontaneous product of "passionate professionals," not agents of the chain of command. Note: Other parts of BCKS should be subject to command interest and intervention. They are CLTs, official KNs, and perhaps ATs, but *not* SPFs.

- 2A.** Concern that BCKS not be over-structured—in effect dictated to users. BCKS should evolve as users want it to. However, all understand the need for Army OPSEC oversight of BCKS processes.

**B.** CMTC accepted, no change.

- 3A.** An unspoken but clear comment: CompanyCommand.army.mil isn't broken; in fact it's great. Don't fix it!

**B.** CMTC accepted, no change.

Author observation: In most Army areas, chain of command pressure will cause positive change. Not the case in SPFs. SPFs must genuinely be the product of "passionate professionals." Command intervention will severely taint if not destroy what must be wholly volunteer participation to be successful. This is a central requirement of BCKS.

- 4A.** Without further explanation, the common assumption of all the OCs is that BCKS is another chat room. That is not meant negatively. There is full agreement that excellent data and info exchanges are going on every day. However, there is apparently no reflection with respect to BCKS' role supporting expanded knowledge and understanding of AT, CLT roles.

**B.** CMTC accepted, no change.

- 5A.** All agree OPSEC is a major concern. There are problems getting JRTC KN-CALL content to requestors due to OPSEC concerns. But OCs agreed that having alert, informed facilitators ready to divert a thread to The SIPRNet is the best OPSEC defense. Several thought that Non-secure Internet Protocol Router Network content could cite references to the SIPRNet for KN material.

**B.** CMTC accepted, no change. One impassioned comment was to use only one net—the SIPRNet. Otherwise, it's too complex to distinguish and errors will be OPSEC violations.

- 6A.** After discussing, OCs agreed that eTDG vignettes fed by JRTC rotation content and captured by the instrumentation system could provide excellent learning support for BCKS—developing art of command knowledge and understanding. But that is a new thought, and OCs need to think through the implications.

**B.** CMTC accepted, no change, but commented that implementation must cover the great variety in current CMTC rotations—NATO Afghan, OEF, OIF, Stability Force (Balkans), Kosovo Force, and high-intensity conflict for 1 AD reset. There will be a major and important eTDG design challenges if CMTC becomes the expeditionary training center in the near future.<sup>144</sup> Joint and inter-agency are understood and addressed. CMTC has extensive past multinational experience. JIIM applications of BCKS seem highly likely to be developed at CMTC. There is potential here for important BCKS teaming with U.S. Army Europe.

- 7A.** Agree with the SPF, KN, action team, and CLT examples as described in the 1-41 Mech scenario (Appendix E). OCs appeared to understand each (SPF, KN, AT and CLT) and sensed that scenario examples were good. There were no negative comments with respect to the content of the 1-41 Mech scenario.

**B.** CMTC agreed, but there were uniform comments that chain of command/functional support team reconstitution (Co Cmdr, First Sgt, S2 KIA) would not require actions portrayed in the 1-41 Mech scenario, because previous training would have trained for continuity of command and covered key personnel losses. (One OC was from 1-41 in OIF1).

“Mature BCKS as it might be in an Infantry Battalion” was discussed in detail and accepted without change.

All were concerned by the absence of bandwidth that would enable actions described in the scenario. All CMTC OCs expressed strong reservations about the inadequacy of bandwidth “downrange” and the scarcity of SIPRNet access in

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<sup>144</sup> The CMTC is now the Joint Multinational Readiness Center supporting NATO training.

general. I commented that increasing fixed basing of current operations may alleviate the bandwidth problem for BCKS fielding in OIF/OEF.

**8A.** No disagreement with discussion of need for, and description of, the suggested BCR applied to intuition-based, quick decision-making.

**B.** CMTC accepted, no change. Excellent discussions in all groups about the need to increase mission command training (mission command, not MDMP detail command per FM 6.0).

**9A.** Must have BCKS in both NIPR and SIPR. Some units have only one and are unable to get to the other routinely.

- Must have NCO.mil up and running.
- Must get BCKS into JIIM—JIIM.com.

**B.** CMTC accepted, no change. All groups requested more SIPR for OCs so they can mentor/coach on SIPR.

- CMTC accepted, no change.

## 1. Items apparently not on the horizon

This categorization should not be taken negatively; it merely reflects busy OCs who have not considered these new issues. No bias was reflected one way or another; in fact, all OCs appeared quite open to considering these items.

**10A.** Mission command—FM 6.0—developing intuitive decision-making SKA.

**B.** CMTC accepted, no change.

**11A.** Leader teams (Army or JIIM). No questioning of BCKS CLT model (various chains of command, coordination and functional support) or of SPF, KN, AT, CLT interacting to develop HP CLTs.

**B.** CMTC accepted, no change.

**12A.** Excellent discussions about how BCKS might support pre- and post-MRXs across OIF/OEF rotations. The consensus was to share JRTC-based eTDG across OIF/OEF rotations with coaching by OCs. If possible, put eTDGs on SPF such as Battalioncommand.army.mil.

**B.** CMTC accepted, no change. There was extensive discussion about various ways for OCs to sponsor SPFs between old and new units with occasional OC interventions to stimulate learning. Everyone expressed substantial concern about the difficulty of getting timely, complete, updated data and information for KNs. The CALL paradigm was deemed “broken.” All agreed that adequate content for eTDGs is generated and archived in MRX rotations to support leader and leader-team preparation as well as transition “downrange.” A substantial problem today is maintaining OC currency in changing TTPs “downrange” so the OCs are effective trainers during MRX. Several OCs suggested that SPFs established before and during MRXs could be sustained during deployment with leaders from replacement units added.

**13A.** JRTC role: to make data/information “digestable.” Implied: also stimulate knowledge and understanding packaged for leader team use that would support intuition-based decision-making.

**B.** CMTC accepted, no change.

**14A.** Design characteristics of learning content prepared to support right-seat rides for OIF 2-3 (assumptions for planners):

- OIF “downrange” leader time to support: 2–3 hours/week; Leader team time: 1 hour/week.

**B.** CMTC accepted, no change.

- Sixty percent content focus on individual leader, 40% focus on leader teams.

**B.** CMTC debate. Rather than 60–40%, reverse to 40–60%. Majority: depends on unit type and echelon being prepared.

- 70% general doctrine, 30% TTP specific (expect frequent changes to TTP to stay ahead of the enemy).

**B.** Three CTC groups: 60–40%, 50–50%, and 70–30%. No consensus. Extended discussion of the relative merits of explicit TTP training when TTPs change so frequently, particularly in OIF.

**15A.** Concern regarding inadequate OIF preparation for CSS EAD units. Who, what, how?

**B.** CMTC accepted, no change. Comment that CSS rotations are coming with Unit of Employment (Modular Brigade) implementation.

**16A.** Conduct right-seat rides as a voluntary series of “courses” available at units’ request. Develop effective training/learning modules for unstructured use as desired by OIF3/OEF6 units. Strong minority view: Have certain mandatory right-seat ride “courses” pre-deployment.

**B.** CMTC: all believe it’s necessary to have some mandatory “courses” including how to conduct a right-seat ride and improvised explosive device awareness.

## 2. Personal Observations

These are personal views, but I encouraged the OCs to speak up if I was off-base. All OC small groups had established outspoken willingness to comment critically by this point in the discussion. There was no disagreement expressed with respect to the observations below.

**17A.** JRTC training is a superb generator of effective, intensive eTDG (drawing on scenarios, Role Players, instrumentation system, and OC mentoring, training, coaching). There is a probable learning return, both pre- and post-MRX.

**B.** CMTC: Same.

**18A.** Chat rooms are excellent for sharing data and information. To develop knowledge and understanding, leaders and CLTs need eTDG that stimulate active involvement and experiential learning. For example, there is great learning effectiveness through OIF 2 and 3 leaders executing a common eTDG together—comparing through an AAR or BCR. Note: This focuses on exchange of knowledge and understanding by interactive experiential learning rather than exchange of data and information by SPF chat rooms.

**B.** Extended discussion at CMTC. The point was raised several times that with Army National Guard rotations consisting of units from 14 states, USAR and AC, SPF supported by OCs could be helpful to pre-MRX mission coordination and training. Several OCs opined that representing the rotation’s likely “worst day” in a vignette would stimulate excellent learning.



**19A.** Current JRTC LTP: entrenched process MDMP—planning not execution-based. Contractor-dominated. MDMP remains important as a baseline logical thought process. With limited time, how much is enough?

**B.** Not discussed at CMTC.

**20A.** Need agreed sharing of responsibilities for OIF2 and OIF3. For example, a division of responsibilities might be:

- Content requirements: OIF2
- Learning/training plan: OIF3
- Content (eTDG etc): created by “dirt” CTCs
- Mentoring/coaching: overseen by “dirt” CTC

**B.** Not discussed at CMTC.

**21A.** Need to right-seat ride OIF3 by leaders and leader teams (vertical and horizontal).

**B.** Same at CMTC. Consider “reverse” right seat rides—early returnees coaching successors or preparing OCs at MRXs.

**22A.** Design all eTDGs to support BCKS model: SPF, KN, AT, CLT.

**B.** Not discussed at CMTC. Implicit in discussion of challenges of training multinational forces at proposed Joint Multinational Training Center.

**23A.** Assess eTDGs using developing BCKS Key Performance Parameters.

**B.** CMTC: Same.

**24A.** Need a major focus on generating CTC-developed eTDGs that can support extensive experiential learning to develop an experience base that improves mission command capabilities (such as BCRs and intuition-based decision-making). Particular applicability: senior Reserve Component leaders needing expanded experience to support intuition and CSS leaders to develop warrior culture. “Logisticians fight routinely too.”

**B.** Same at CMTC. CTC-generated vignette production could not be institutionalized unless additional resources are provided.

**25A.** Need a workshop on incorporating current instrumentation system capture of role player interactions during rotations into eTDG for leader and leader team learning. Note: Sergeant Major of the Army (Ret) Bill Gates has an adaptive leader exercise from ARI Leavenworth—an excellent example of “a way.” Note: It does not have to be a professionally scripted Hollywood movie to teach effectively. Those eTDG could be used post-JRTC rotation for take-home pre-deployment training and for early prep of next OIF/OEF rotation.

**B.** Not discussed CMTC.

The Expeditionary Training Center concept is important and likely to come. BCKS should be considered a resource available to support it as a lead JIIM effort. At a minimum, the issues of BCKS support to CTC operations including MRX and then Right-Seat Rides, and BCKS support to JIIM at an Expeditionary Training Center would seem to be timely subjects for the semi-annual CTC Strategy Conference.

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